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CLASSROOM SIMULATION--A NEW DIMENSION IN TEACHER EDUCATION.

BY- KERSH, BERT Y.
OREGON STATE SYSTEM OF HIGHER EDUCATION, MONMOUTH

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THE OBJECTIVES OF THIS STUDY WERE TO DEVELOP A PROGRAM OF CLASSROOM SIMULATION FOR THE PRESERVICE EDUCATION OF ELEMENTARY SCHOOL TEACHERS AND TO CONDUCT A TEST OF THAT PROGRAM. A SINGLE SIXTH-GRADE CLASSROOM WAS SIMULATED THROUGH THE USE OF FILMS AND PRINTED MATERIALS. A TEST GROUP OF 40 STUDENTS, DIVIDED INTO 4 GROUPS, WAS PRESENTED WITH 60 PROBLEM SEQUENCES. THE STUDENTS WERE ASKED TO MAKE AN APPROPRIATE RESPONSE TO EACH SITUATION AND THE EXPERIMENTER PROJECTED AN APPROPRIATE FEEDBACK SEQUENCE. FOUR METHODS WERE USED TO PRESENT THE SEQUENCES--(1) LARGE MOTION PICTURES, THE MOST REALISTIC, (2) SMALL MOTION PICTURES, INTERMEDIATE, (3) LARGE STILLS, INTERMEDIATE, AND (4) SMALL STILLS, LEAST REALISTIC. ANALYSIS OF VARIANCE IN THE POST-TEST SCORES REVEALED A SIGNIFICANT DIFFERENCE IN FAVOR OF THE SMALL STILLS, THE LEAST REALISTIC. ALL OTHER DIFFERENCES WERE INSIGNIFICANT. (PM)

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Bert Y. Kersh

Final Report

Title VII Project Number 886

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OREGON STATE SYSTEM OF HIGHER EDUCATION

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A New Dimension in Teacher Education

Bert Y. Kersh

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I Description of the Project

Beginning teachers frequently have difficulty transferring into practice their knowledge of textbook recipes and verbal descriptions of model teaching behavior. One explanation for their difficulty is that there is relatively little opportunity for a student teacher to systematically practice his teaching skills under close supervision. Only by chance in practice teaching does the student gain depth and breadth in his experiences, and the typically over-burdened college supervisor is seldom available to provide the kind of direct supervision that would be most desirable.

Many educational psychologists would agree that a more nearly ideal instructional program for student teachers should include something in addition to supervised experience in a real classroom. The supplementary experience should allow the student teacher to practice new behaviors without embarrassment or censure - to learn how it feels to be "tested" by the students, to try several different methods of handling a problematic situation; to actually experience how students look when they are bored or restless or confused, and to learn when to shift from one topic to another or to probe deeper into the one under discussion.

The problems of pre-service field experience in teacher education are hardly new. Practical problems of administration are so numerous that any improvement over the presently employed practices and procedures seems unlikely. However, very similar types of problems have been successfully resolved in other walks of life through a new technology called "simulation." Commercial pilots are "checked out" in modern aircraft and Air Force officers learn to direct fighter interceptions of enemy bombers without endangering human lives and expensive equipment (Adams, 1962; Chapman, 1959; SAGE Training Group, 1957). They learn through actual experience in situa-

tions which approximate reality through the use of electronic computers and special electro-mechanical devices. The sensations of sight, sound and motion, are so realistic that the learners frequently have difficulty in retaining their true orientation in the artificial setting. Computer-based "games" and related simulations place less emphasis on the physical setting but are equally good examples (Guetzkow, et al., 1963; Guetzkow, 1962; Greenlaw, et al., 1962).

However, such elaborate and expensive equipment in simulation may not be necessary for providing practice in school situations. For example, in the recent DCS (Development of Criteria for Success) Study which was coordinated by the University Council for Educational Administration, an entire school setting was simulated through the use of motion pictures, tape recordings, and printed documents (Cunningham, 1959; Frederiksen, 1962; UCEA, 1960).

The most realistic experience for the principal in the DCS Study was sitting behind a desk and dealing with problems, one at a time, which were presented to him in his in-basket. Occasionally, tape recordings of a secretary interrupting his paper work were interjected. To each problem the principal was required to respond in the way he typically would, and to record in great detail the type of action he would typically take. Although the DCS Study was primarily aimed at evaluating elementary principals, the same materials are being used for instructional purposes. The initial cost of producing the materials was not prohibitive, and their reproduction and distribution are possible for a fraction of the original cost. They are proving to be extremely flexible and powerful stimulus materials for seminars and workshops in school administration.

Recently, a procedure for using simulation in teacher education was

created through a pilot program of research and development at the Teaching Research Laboratory of the Oregon State System of Higher Education (Kersh, 1961; 1963). A simulation facility was built and techniques developed for simulating a variety of classroom situations. The situations are simulated through the medium of sound motion pictures and printed materials. Multiple projection techniques are employed to create more realistic effects. The most promising area of immediate application appears to be the pre-service education of classroom teachers.

In the simulated classroom the student teacher is able to practice classroom teaching behavior with the knowledge that only a few objective observers are present. He can practice repeatedly, and under direct supervision, an exercise in teaching because he interacts with a filmed classroom. Any type of practical problem in classroom management and in group or individual instructional methods may be created. Furthermore, it is possible to provide the learner with immediate knowledge of the results of his actions simply by shifting from one film to another immediately after the student teacher tries a certain kind of behavior.

The proposed technique is not intended to be rigid in its approach. As is true in the "real world", the learner does not learn precisely how to react to each classroom situation. Instead, the objective is to develop a learning set towards a specific class of teaching problems - a way of operating within certain behavioral boundaries.

If effective and feasible, the proposed technique would provide teachers with a new opportunity for gaining classroom experience. It is anticipated that the simulated classroom would be employed initially as a supplement to conventional programs of supervised teaching provided in the pre-service program. Precisely how it would be employed after development is

not the primary concern at present. Rather, the principal present concern is with research on the technique itself, particularly as it concerns the degree of "realism" (fidelity) that is required in simulation.

Objectives

This present research had two primary objectives, as follows:

1. To develop the principles and skills required in the production of classroom simulation materials, and the techniques for using the procedure in the pre-service education of elementary school teachers. The immediate concern was with the student teacher's ability to detect, diagnose, and resolve such teaching problems as confusion, inattention, distraction, and fatigue on the part of the learner.

2. To conduct an experiment aimed at determining the need for "realism" (fidelity) in the simulation procedures used in teaching. Of those variables possibly contributing to fidelity in simulation, the size of and motion in the projected image was explored.

Preview of Procedure and Results

The project was divided into two phases corresponding to the two primary objectives stated above: (1) the developmental phase, and (2) the experimental phase. The procedures employed in each phase will be described in more detail in subsequent sections. As an overview, however, it may be said that in the developmental phase the experimental materials were produced and a teaching procedure perfected. The materials were developed only to the point where they proved effective as an instructional medium for the experiment.

A single sixth grade classroom was simulated through the use of motion picture films and printed materials. The class is named "Mr. Land's Sixth

Grade." Mr. Land is the ficticious name of the regular supervising teacher for the class of 22 youngsters. The simulation materials include a complete set of cumulative records on each of the 22 youngsters, a short description of the hypothetical school and community, and orientation films showing Mr. Land working with his class in a typical fashion. The main body of the materials used in the instructional phase include a total of 60 problem sequences on film, each with alternative feedback sequences designed to show the student teacher (T) the possible consequences of his handling of the problem. The 60 problem sequences are divided into three sets of twenty sequences each called Program I, II, and III. Each of the three programs correspond to one school day and are roughly parallel in terms of the types of problems included. The selection of problems was based on the work of Hughes (1959) at the University of Utah.

Instruction procedure. In brief, the instructional procedure for using the simulation materials was as follows. First T was oriented to the simulation facility and to the procedure, then he was given a performance test in the simulated classroom using one of the three programs. The orientation and pretesting procedure took approximately one and one-half hours per subject.

Next, T was given the actual instruction in the simulation facility with the projections adjusted to the particular degree of realism prescribed for purposes of the experiment. The filmed problem sequences of actual classroom situations were presented and T was requested to enact his response to each. Depending upon the reaction of T, the experimenter (E) selected and projected one of two or three alternative feedback sequences. Feedback sequences are short films showing the pupils reacting in different ways.

The purpose of the feedback sequences was to communicate to T the most likely consequence of his behavior. For some problem sequences, E had little choice in selecting feedback sequences. For example, one episode shows "Eddy" approach T and report that he has been sick and should not be allowed to play during recess. T may ask for a note from home or choose not to, so one feedback sequence shows Eddy searching for a note in his pocket and handing it to T, and the other shows Eddy nodding his head and then turning to take his seat. The feedback sequences in this particular case are simply an extension to the interaction between pupil and teacher, and provides T with little more than a concrete example of pupil behavior to discuss and evaluate in terms of supporting records and the particular context of the problematic situation.

With other problem sequences the choice of feedback sequences depended more on E's judgment. E's judgments, however, were based on pre-established standards developed by a jury of master teachers. For example, another problem sequence shows a game of "keep away" begin spontaneously in the classroom after a recess period. The alternative feedback sequences show the youngsters settling down in their seats in one case, and continuing to play their game in the other. In either case, it could be anticipated that T would attempt to call the class to order. It is E's task to evaluate T's behavior and to select the most likely consequence of his response to the problem of disorderly behavior according to the jury's criteria.

A variety of problem sequences were employed to teach a specific principle or skill. Each sequence was used repeatedly until T achieved the pre-established level of performance or until the total number of repetitions reached ten, whichever was sooner. After each presentation of the problem and feedback sequence, E and T discussed the experience together in prepa-

ration for the next experience. E withheld direct guidance as much as possible, forcing T to rely heavily on the feedback sequences and supporting records in his self-evaluation.

After the instructional phase, T's performance was tested in the simulation facility.

Experimental design. In total, 40 Ts were selected and assigned to four experimental groups. The program of testing and instruction required approximately ten hours in the simulation facility for each T, five to seven hours of which were devoted to instruction and the remainder to testing and orientation.

The four experimental groups were given the same instruction, with only the realism of the screen projection varied. The most realistic display employed life-size sound motion pictures, and the least realistic employed still projections greatly reduced in size. The four experimental groups were identified by the way they were treated as follows:

Group 1. Large-Motion (most realistic)

Group 2. Small-Motion (intermediate)

Group 3. Large-Still (intermediate)

Group 4. Small-Still (least realistic)

Experimental results. The performance ratings of each subject before and after instruction were used to compare the effectiveness of the more or less realistic projections in the simulation. Other comparisons were made on the basis of the number of trials required to reach criterion during the instructional phase, and the self reports of Ts' reactions to changes and display mode and to the medium as a whole.

The student teachers were all juniors and seniors selected from a course of instruction taught by the same instructor on two occasions during successive terms. They were screened on the basis of scholastic aptitude,

sex, age, and previous experience with children in an instructional setting. Nearly all the subjects were women under the age of 25 with essentially no teaching experience. Analysis of variance of aptitude test scores and pre-test scores indicated no statistically significant differences among the four groups.

Analysis of variance in the post-test scores revealed a statistically significant difference in the main effect of screen size ($p \leqq .05$) in favor of the smaller, less realistic projection. All other differences were not statistically significant.

Analysis of variance in the scores reflecting frequency of trials required to reach criterion revealed a statistically significant difference in the main effect of motion ($p \leqq .01$). This finding indicates that more practice trials were required with motion pictures than with still projection. Again, all other differences among the groups were not statistically significant.

Finally, analysis of the self-reports of subjects from the separate groups revealed some strikingly consistent reactions. The more realistic mode of presentation reportedly produced sensations of tension, fear, and frustration which were notably absent when the less realistic mode was used. Reactions to the instructional medium as a whole were uniformly favorable with two exceptions. The two dissenters reported they failed to overcome the feeling of strangeness and resisted reacting to the screen.

Discussion. Although it is an inherent requirement that simulation be realistic, all stimulus properties of the real situation may not be relevant. Previous studies on fidelity of simulation and transfer of training have been reviewed elsewhere (Adams, 1963). These studies indicate that high fidelity of simulation is not of particular importance. But existing

data pertain primarily to continuous psychomotor tasks involved in the operation of aircraft. Little is known about fidelity of such visual-perceptual phenomena as radar displays and motion pictures. In the present simulation whether the display is a motion picture or a still projection is apparently not relevant, and the smaller less realistic projection is most effective in instruction.

Taken at face value, these findings have important practical and theoretical implications. Practically speaking, if the relevant features of the classroom can be presented on a small screen using slides, the technique would be considerably more feasible for use in teacher education on a broad scale. Instead of the large screen and complex display facility used in the present experiment, a small portable and inexpensive display readily obtainable at present could be employed.

It is entirely possible, however, that these data do not reflect simply the effects of the display mode during instruction. Prior to the instructional phase of the experiment, one and one half hours were devoted to orientation and the testing, all of which employed the more realistic large motion picture projection. The present experimental design failed to control for the learning which must have resulted from this experience which was shared by all subjects. It is very likely that the results reflect a complex interaction between T's initial exposure to the more realistic display and his individualized instruction in the less realistic mode. The total effect may explain the superior performance of the students having instruction in the small screen mode. Further experimentation will be necessary to determine whether it is necessary to provide experience with both the realistic and the less realistic projection in order to produce the effects revealed by the present experiment.

It is also likely that results of a comparable performance test in a real classroom would be different. T's performance in a real setting is, of course, the ultimate criterion. The transfer effects of practice in the more realistic simulation, if any, may not become evident until T is observed during actual practice teaching.

Thorndike's long-standing identical elements theory of transfer is implicit in the assumption that the simulated instructional setting should be as realistic as possible. In so far as the post-test performance of T can be accepted as a test of transfer, these present data do not support Thorndike's position. The data are even more impressive when it is recalled that all subjects were tested with the more realistic large-motion picture display. Thus, learning with the small display, whether motion or still projection, was superior to learning in response to the same materials projected in the same large-motion mode employed in the final test.

Perhaps of greater current interest is the bearing these data have on verbal mediation as a mechanism of transfer. As the motion picture projection is made less realistic by reducing the size of the image or using still projections without the accompanying sound track, the learner tends to relax and to become more analytical in his response to the problem sequence. Ts described the more realistic display as "frightening," and "overwhelming," and the less realistic presentations as being "more relaxing," without pressure to react immediately, or as giving them "more time to think." These data suggest that the superior performance of the groups presented with the smaller projections may be attributed to their translation of the concrete experiences into principles of behavior (or symbolic processes of some sort) which subsequently proved effective as mediators for their responses to the test series.

Not unrelated to verbal mediation and transfer is the learner's ability to employ heuristic processes of thinking, i.e., to perceive problematic classroom situations in a way that will lead most probably to a solution. Duncker (1945) stressed the importance of the learner's ability to restructure a problematic situation, to focus on the essential elements in the problem and to perceive relationships among elements in the situation. It has been hypothesized (Kersh, 1955) that the learner will be able to restructure a problem and establish relationships more readily to the extent that the stimulus materials are "iconic" representations (closely identical in form to that which they represent). Instead, these present data suggest that the less iconic, still images facilitate problem solving when employed with verbal descriptions of the projected situations. The smaller projections tended to be brighter and more clear, particularly on the periphery of the projected image (this, of course, in contrast to the large, life-size projection). The reduced visual angle, too, may have contributed to the learner's ability to structure the problematic situation and to focus on the essential elements in the displayed situation during the instructional period.

A restatement of the conclusions from this project are listed in Section V of this report.

II Theoretical Framework

Simulation as a technique of instruction has been developed most extensively in connection with the System Training Program (STP) of the System Development Corporation (SDC). From the initial studies conducted in RAND's System Development Laboratory (Chapman, and others, 1959) it was concluded that Air Force crews learned to operate in a Direction Center most efficiently when they are allowed to practice the operation of the system in a realistic setting and to evaluate their own performance after each exercise. The primary responsibility of the teacher in STP has been to provide the learners with purely objective records of their performance immediately after the practice period and, of course, to plan the practice exercises. A type of non-directive teaching is employed.

Since the earlier studies, much has been written at SDC about the program, but many questions still remain unanswered. Evidently one of the key factors contributing to the success of STP is the provision of information to the learners about the events which follow their actions in the simulated setting. This information, often called "feedback," permits the learner to evaluate his own action and to decide whether to continue doing the same thing or to try some other way of handling the situation.

Typically, in a STP exercise there is feedback during the practice session as well as afterwards. Otherwise, the learner could not have an ongoing experience. However, during the STP exercise the trainer has no control over the feedback. It is automatically determined that an action will be followed by a certain event. This is not at all the way it happens in real life. In real life, the feedback to the learner is under the control of the person or persons with whom the learner is interacting, to some extent at least. Take, for example, an adult speaking with a young child.

In a very real sense, the adult determines the behavior of the youngster and vice versa. Consider more specifically one or two dimensions in the voice behavior of a child as he answers questions from an adult. If the adult has difficulty hearing the youngster because the child speaks softly, the adult may interject a request to speak more loudly. This interjection is feedback to the child who may then repeat what he was saying in a little louder tone of voice. If, on the otherhand, the adult is not satisfied with the extent to which the child answers his questions, he may ask him to say a little bit more about it. This, in turn, is feedback which may be followed by a more elaborate answer. The adult, then, is changing the behavior of the child by controlling the feedback during the process of a speech communication.

There can be little doubt that the behavior of one person is influenced greatly by feedback which is under the control, consciously or otherwise, of people with whom he interacts. Most certainly, much that we learn is the result of such experience. The frightening thing about this notion is that the person who is controlling the feedback seldom is aware that he is teaching, and the person who is receiving the feedback may not be aware that he is being taught.

The unique feature of the simulation technique developed for the present project is that an attempt is made to control feedback during the simulated experience as well as afterwards. Perhaps it would be more accurate to say that the simulated experience is broken down into very small steps and the learner is provided with information concerning the consequences of his behavior at each step of the way. Furthermore, the information provided the learner is given directly (by the same medium) rather than indirectly through verbal descriptions or printed records of what happened. Because the simulation is broken down into small steps which are short in duration, the learner may be permitted to practice each experience repeatedly and thus

to experience th consequences of alternative ways of handling a particular situation.

Original theoretical basis. Originally, the classroom simulation technique developed for this present project was based on the operant conditioning model. As the technique was developed a certain amount of drifting occurred just as it did in the technology of programed instruction. Now the term "reinforcement" is probably no longer applicable in the strict sense of the word, so "feedback" is used instead.

In the original conceptualization, certain assumptions were made. First, it was assumed that student teachers most frequently have previously acquired highly differentiated ways of behaving in the classroom which very quickly become evident when the student teacher engages in practice teaching. More technically, it was assumed that the classroom behavior of most student teachers is controlled primarily by external stimuli in the classroom.

Secondly, it was presumed that the classroom behavior of teachers is patterned or "shaped" by stimulus events in the classroom which act as reinforcers. In other words, teachers learn to teach from teaching experience in the classroom; they learn to verbalize about teaching from their experience as students in college classrooms. As such, educational methods and theory courses taught by lecture and discussion could not be expected to change the classroom behavior of the beginning teacher.

From this line of thinking, it was a short step to the conclusion that a technique which would permit E (the supervising teacher) to control the stimulus events in the classroom would prove to be an extremely valuable tool in teacher education. If the supervising teacher were able to control the situation precisely, theoretically he could effectively "shape" the behavior of the student teacher in training by reinforcing successive approximations of the desired behavior.

From this original theoretical notion, the concept of "controlled feedback" was developed. Controlled feedback differs from the original extension of reinforcement theory in that no systematic effort is made to identify the reinforcing stimulus. Instead, the student teacher is presented with the most likely consequences of his behavior. That is to say, he is shown or has described to him the way the class would most likely respond to him under the circumstances. The feedback information may or may not be reinforcing, and it may or may not have a controlling influence on T's behavior. It is simply information, hopefully "coded" so that it has form or meaning to the learner, which T may incorporate in an ongoing problem-solving, decision-making, or hypothesis-testing thought process.

From reinforcement theory, then, the theoretical basis for the presently described instructional simulation has shifted to an "information-system approach," best formulated by Ryans (1963).

Ryans' theory. Ryans' theory is a theory of instruction which draws from general systems theory, information theory, and Sears' conception of the "dyadic sequence." Ryans emphasizes teacher behavior and relies heavily on his studies of teacher characteristics (Ryans, 1960). Ryans' conceptual framework is briefly described in the following paragraphs so that the reader may better understand Ryans' model of the "teacher information processing system" diagramed in Figure 1. Although Ryans' model was not employed directly in developing the simulation of Mr. Land's Sixth Grade, it is a more complete and more formal explanation than the writer's. When viewed against the framework of Ryans' model, omissions and inaccuracies in the present simulation become evident and it can be assessed more effectively.

Ryans treats the teacher as an information-processing system which receives information, evaluates, makes decisions on the basis of it, encodes

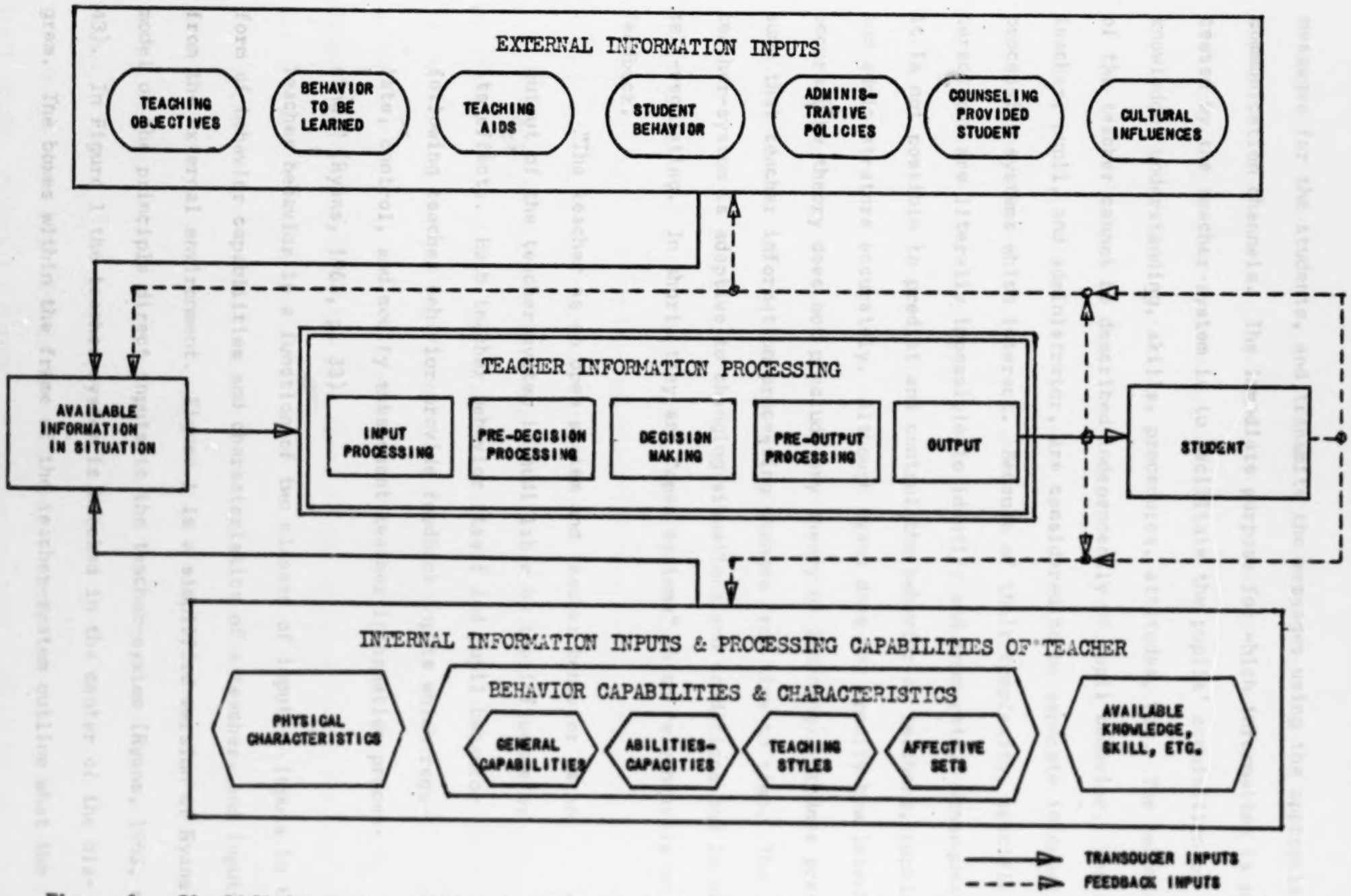

Figure 1. Simplified version of Ryans' model of the teacher information processing system (Ryans, 1963, p. 43). The output is teacher behavior. Concurrent (interacting) inputs are not shown.

messages for the students, and transmits the messages using the appropriate communication channels. The immediate purpose for which information is processed by the teacher-system is to facilitate the pupils' acquisition of knowledge, understanding, skills, procedures, attitudes, etc. The behavior of the teacher cannot be described independently of pupil behavior. The teacher, pupil, and administrator, are considered to be separate information-processing systems which interact. Because of their complexity, specific interactions are literally impossible to identify and enumerate. Consequently, it is not possible to predict and control the behavior of teachers, pupils, and administrators accurately. Although Ryans does not specify how learning occurs (the theory does not preclude any theory of learning), it does presume that teacher information processing changes from time to time. The teacher-system is adaptive to changing situations and conditions and is also self-regulating. In short, they are "open systems" which rely heavily on feedback.

> "The teacher as an open system and teacher behavior as an output of the teacher system is modifiable by the influence by its effects. Both teacher behavior itself and pupil behavior following teacher behavior provide feedback inputs which regulate, control, and modify subsequent teacher information processing." (Ryans, 1963, p. 33)

Teacher behavior is a function of two classes of inputs: inputs in the form of behavior capabilities and characteristics of a teacher, and inputs from the external environment. Figure 1 is a simplified version of Ryans' model of the principle direct inputs to the teacher-system (Ryans, 1963, p. 43). In Figure 1 the teacher-system is blocked in the center of the diagram. The boxes within the frame of the teacher-system outline what the

teacher does with the available information in the situation. The output of the teacher information-processing system is teacher behavior in the situation (information input to the pupil-system). The pupil is indicated by the box to the right-center of the diagram.

External information inputs are indicated in the oval frames at the top of the diagram in Figure 1. External information includes teaching objectives, teaching aids, the behavior of the pupils, administrative policies which pertain to the particular situation, the counseling-guidance to which the pupils are subjected, and the cultural influence on the learning situation.

The hexagonal frames at the bottom of the diagram include the internal information inputs and information-processing capabilities of the teacher. These include the physical well-being of the teacher, behavior capabilities and characteristics of the teacher (general capabilities, characteristic behaving styles, and characteristic affective sets), and retrievable information pertinent to the teaching situation.

The diagram further indicates that there are three types of inputs operating in the model: (1) transducer outputs-inputs, (2) concurrent (interactive) inputs, and (3) feedback inputs. Concurrent inputs are not indicated in Figure 1. Ryans indicates that the feedback inputs are particularly important in that they contribute to the adaptive behavior of the system and modify future teacher behavior in similar situations.

Ryans' theory further assumes that teaching behavior in general tends to fall into five categories: motivating-reinforcing, presenting-explaining-demonstrating, organizing-planning-managing, evaluating, and counseling-advising.

The readers attention is directed now to the simulation of Mr. Land's Sixth Grade. Figure 2 diagrams the information constituting the simulation

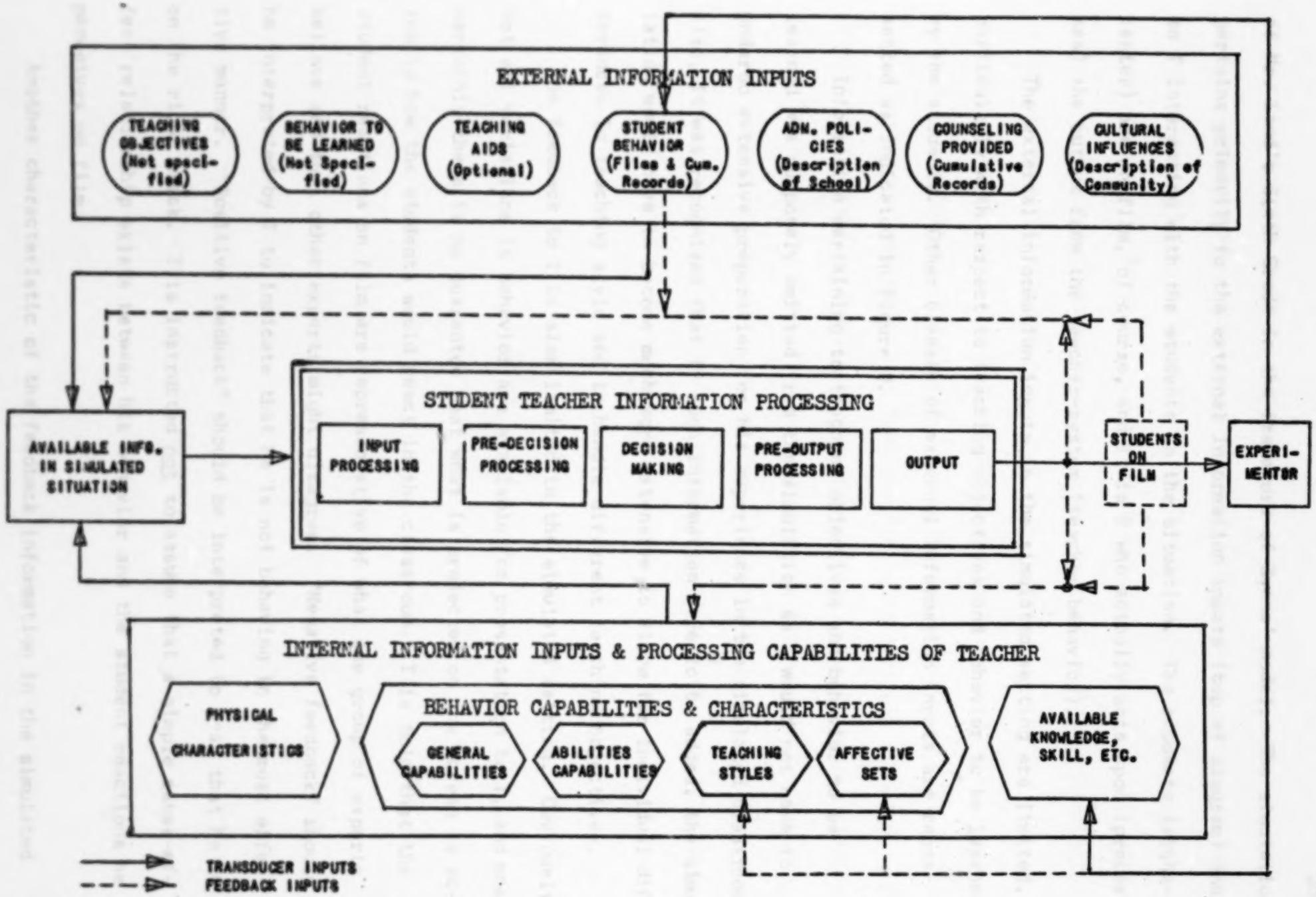

Figure 2. Information processing by the student teacher in the simulated setting of Mr. Land's Sixth Grade, based on Ryans' model (1963, p. 43).

of Mr. Land's Sixth Grade in the framework of Ryans' model. The simulation pertains primarily to the external information inputs (top of diagram) and to T interacting with the students in the situation. The students (right-center) are on film, of course, and it is E who actually acts upon (processes) the output from the teacher-system (teacher behavior).

The external information inputs in the simulated setting are limited, particularly with respect to teaching objectives and behavior to be learned by the students. Other classes of external information inputs are represented as indicated in Figure 2.

Information pertaining to teaching objectives and behavior to be learned was purposely omitted from the simulation so T would not have to undergo extensive preparation for his experience in the simulated classroom. Also, it was recognized that if such information were to be added, the simulation would have to become much more extensive to allow for individual differences in teaching style and to handle different teaching objectives.

The feedback to T is also limited in the simulated setting. Obviously, not all variations in behavior are available for presentation to T, and most certainly there is no guarantee that what is projected on the screen is actually how the students would react in the classroom. T is told that the student reactions on film are representative of what one group of experts believe and that other experts might disagree. "Negative feedback" should be interpreted by T to indicate that he is not behaving in the most effective manner. "Positive feedback" should be interpreted to mean that he is on the right track. T is instructed <u>not</u> to assume that a simple cause-effect relationship exists between his behavior and the student reactions he perceives on film.

Another characteristic of the feedback information in the simulated

setting is that the teacher's behavior does not affect the external situation. In other words, there is no feedback line from the teacher-system output to the category labeled "External Information Inputs" in Figure 2, whereas there is in Figure 1. In the real situation, administrative policies, counseling provided to students, teaching aids, etc., certainly could be influenced by the T's behavior.

The external aspects of the situation may be influenced by E in discussions with T, however. Information from E obtained during discussions with T is indicated by the solid line from the "experimenter" box directly to the classification labeled "Available Knowledge, Skill, etc.," (bottom of Figure 2). Information from E may also be considered as feedback to T regarding his performance in the simulated setting. This feedback from E may have an effect on the behavior capabilities and characteristics of T, particularly T's teaching style and affective sets.

III Materials Development

A single sixth grade classroom was simulated. The class is named "Mr. Land's Sixth Grade." Mr. Land is the ficticious name of the regular supervising teacher for the class of 22 youngsters. The actual class was somewhat unique in that the teacher, "Mr. Land," had been with them for two consecutive years. The children knew each other quite well and had developed a very close working relationship with their teacher.

That the simulation of Mr. Land's Sixth Grade is developed from an actual classroom group deserves special mention. The children were cast for their parts by their regular teacher, and essentially enacted their own personalities. On several occasions, members of the class influenced the director to change the script in ways that they felt were more typical of themselves. It is doubtful that the simulation could have been developed so well if the children had been selected from several classes to fit prepared scripts.

More will be said about the techniques of the production in a later section. First the simulation materials themselves will be described. The simulation materials are grouped under three categories: (1) instructions for using the simulation materials, (2) orientation materials, and (3) filmed dramatizations of classroom problems.

Instructions for using the simulation materials. The instructions include a functional description of the apparatus employed, and the scripts used for the problem sequences with a statement of the problem and the situation in which the problem takes place. The rating procedure and standards established by a jury of three teacher-educators are also included. A sample of these materials are included in the appendix (Programs II and III are not included). The materials in the appendix will be referred to in the paragraphs below.

Orientation materials. Included in the orientation materials are the following:

1. A complete set of cumulative records on each of the 22 youngsters including standardized test data, school achievement records, health records, and a summary of teacher-prepared anecdotes. Each folder contains a snapshot of the youngster. Ficticious names were used, and the records were modified so as to disguise the real identity of each child. Otherwise, the records are copies of those actually on file for the class.

2. A short description of the hypothetical school and community. The description identifies the school as College Grove Elementary School, a laboratory school for the Pacific State College. The school is located in the town of College Grove in the Pacific Northwest.

3. Orientation films showing Mr. Land working with his class in a typical fashion. The student teacher is required to introduce himself at this time and to study the youngsters individually using the cumulative records and a seating chart.

Filmed dramatizations of classroom problems. A total of 60 problem sequences are filmed, each of which has alternative feedback sequences designed to show the teacher the possible consequences of his handling of the problem. The 60 sequences are divided into three sets of 20 each, labeled Programs I, II, and III. Each program simulates a day of teaching. Table I shows how the problems are classified and indicates the number of problems of each type in the three programs. As is indicated, the three programs parallel each other even though the specific problems involved are different in each case. The selection of problems was based on the work of Hughes (1959) at the University of Utah.

Table I

Classification of Problem Sequences

Student Behaviors Represented	Teaching Programs I	II	III	Totals
Management problems				
Disorderly behavior	3	3	3	9
Distracting behavior	3	3	3	9
Baiting - testing	2	2	2	6
Fatigue reaction	2	2	2	6
Communication problems				
Inattention	4	4	4	12
Content	4	4	4	12
Fatigue reactions	2	2	2	6
Total problem sequences	20	20	20	60

The scripts for Program I are included in the appendix. Each problem sequence lasts approximately 30 seconds and is prefaced by a verbal description of the setting in which the problem occurs. A description may include the time of day, the assignment on which the students are working or the instructions which have been given them, and whether or not the teacher is present in the classroom. In addition, the problem sequences are programed so that each occurs in the context of other problems which precede or follow. More precisely, a program of 20 sequences will carry the student teacher (T) through the equivalent of an entire school day beginning just prior to the first bell. A single child, such as Eddie in Program I, may be identified early in the program and be involved in other problems as the day progresses. Eddie, for instance, reports that he has been sick in the first problem sequence (I-1, a personal communication problem) then becomes a management problem for T in I-9, 19, and 20 because he is overly tired. The rating standards require T to deal with Eddie as if he were unusually tired rather than disobedient or lazy.

Techniques of production. In the proposal, the plan was to prepare one set of twenty problem sequences with accompanying feedback sequences. The other two sets of problem sequences were to be used for pre-testing and post-testing, and were not to include accompanying feedback sequences. The basic set of 20 problem sequences was to be tried out and revised repeatedly on the basis of actual experience records with student teachers. However, in the actual production of the filmed materials, it was found that the practical situation prevented the kind of preliminary tryout and revision that was planned. As a solution, the entire set of 60 problem sequences was filmed with accompanying feedback sequences so that the three programs could be used interchangeably as test sequences and training sequences. In the

experiment, the problem sequences were rotated so that possible differences would cancel out.

To produce the motion picture films, Mr. Land's class was relocated in the Teaching Research Laboratory, a converted classroom. The laboratory is equipped with special lights and window blinds, and some attempt has been made to dampen sound in the room. The children decorated the bulletin boards and carried enough of their books and materials to give the room a normal appearance. Since their regular classroom was located in the same building, it was a relatively simple matter to relocate the children for filming.

The films were produced on 16 mm. color film with an optical sound track. The sound was recorded directly on the film as it was being exposed. Even though a sound technician was used in addition to a cameraman, the problems resulting from recording the sound directly in the camera caused time delays, and the production costs rose far beyond the staff's expectations. Despite many retakes and attempts to improve the quality of the film during processing, the sound track is still very impoverished on many of the sequences. TEACHING RESEARCH now has the equipment to produce better quality films and is continuing to do so in connection with other projects which are ongoing. Since completing the present project, a new set of films has been developed under a grant from The Oregon Program.

Each of the problem sequences was originated by the Project Director and prepared in the form of a rough script prior to actual filming. The script was then reviewed by "Mr. Land", the supervising teacher for the class. Mr. Land was able to select the students for key roles and to modify the scripts as required to enable the children to enact the problem situation most naturally. The final script was given to the technicians operating the camera and the sound equipment so that they could anticipate problems

of camera and microphone placement.

With this preparation, the actual filming went very quickly. With the children in the laboratory and while the technicians were preparing for the next scene, the Project Director and Mr. Land would orient the class to the problem sequence to be filmed. Since the children were well cast, only a minimum of rehearsing was required. The children were not required to memorize their lines. Instead, they were asked to speak the intended message in their own words. Had it not been for the problems of sound recording, there would have been very little film wasted.

By allowing the children to take short breaks every hour or so, and by providing refreshments occasionally, it was found that the sixth graders could endure the rigor of film production for five or six hours at a stretch.

The children had to be reminded continually, at first, to react to the camera as if it were the teacher. They had a natural tendency to look to the supervising teacher or to the director, particularly when hand signals were required. This problem was resolved by placing a red light source directly over the camera and by taping a comical face over the camera so that only the lens projected. The children came to call the camera "Mr. One-eye!" The red light was used as a signal to start and stop the action.

It was considered important to have the image on the screen approximate the continuous visual imagery that characterizes human perception. The cameraman was instructed to imagine, at all times, that he was the classroom teacher, and to move the camera in the way that he had a tendency to shift his own vision. Occasionally, the Project Director or supervising teacher would instruct the cameraman to pan or otherwise shift to another part of the room during the filming of a particular sequence. There has been general satisfaction with the results of this technique.

Tryout of materials. The filming was completed in June, 1962. Delays in the processing of the duplicate films and in the final editing meant that the films were not ready for actual use until late October, 1962.

Preliminary work with the films was limited to a class of approximately 30 students at the University of California, Los Angeles (UCLA), during the summer, 1962, and another group of approximately 16 at Oregon College of Education (OCE) during the fall, 1962. The group at UCLA was exposed to a selected number of problem sequences as a group and wrote their reactions. They did not react to the films in the simulation facility for which they were designed, but the preliminary result did provide some indication of the variations of response that could be expected during the experiment.

The group at OCE was exposed to films under conditions which were identical to those used in the experiment proper. Voice recordings were made of each T's reactions to problem sequences, and sound motion pictures were taken of a selected number. These records, along with those from UCLA, were used in the development of the standards for rating the Ts in the experiment.

Standards for the rating scales. During December, 1962, a jury of three teacher educators from OCE provided the standards for rating the student teachers. Two were supervising teachers on the staff of the OCE Campus Elementary School and one was the director of the Campus Elementary School program for student teachers. All jury members had extensive experience in teaching at the elementary school level.

The attempt was to develop standards for rating Ts in terms of the following behavioral dimensions: (1) accuracy of T's verbal assessment of the problem, (2) adequacy of T's choice of response procedure, and (3) effectiveness of T's response (timing, clarity, etc.). Actually, the final form

of the rating procedure provides for two separate ratings of T's response to each problem sequence. T is first rated on the effectiveness of his enacted response to the problem. A three-point scale is used, with a rating of "3" assigned if T's response is equivalent to the jury's standard for "most effective" behavior, a rating of "2" for "acceptable," and "1" for "least effective." The second is a two-point rating for the accuracy and adequacy of T's assessment of the problem and his consideration of particular aspects of the situation. In the latter rating, a rating of "2" was assigned if the T's discussion of the problem afterwards corresponded closely to the jury's assessment, and a rating of "1" was assigned if T's assessment did not correspond to the jury's in one or more respects. The two separate ratings were summed, providing a range of 2 to 5 points for each problem sequence. For any one program of problem sequences, the lowest possible score was 40 and the highest 100 points.

The procedure used by the jury in developing their standards was as follows. Without first seeing the script, two members of the jury listened to the description of the situation (not the problem) read by the third member, then viewed the problem sequence on film. Immediately thereafter, each jury member noted his reaction with respect to (1) the problem and any special considerations involved (information in cumulative record files, behavior of individuals, etc.), and (2) how the problem should be handled. The jury was instructed to think of the most effective teacher they had ever observed and to consider how that person would handle the problem, then to consider the least effective teacher they had ever known and repeat the process. "Acceptable" ways of handling the situation were noted last.

After noting their individual reactions, the jury analyzed the problem they had just viewed and discussed it. They were instructed to arrive

at a concensus of opinion for each problem sequence before continuing on to the next. E served as moderator and recorder during the jury's deliberations. After the jury had agreed on the standards for a particular problem sequence, the reactions of the 17 student teachers who participated in the preliminary tryouts were read and rated by the jury using their own standards. If the standards proved adequate for this purpose, the jury continued with the next problem sequence in the same fashion.

It is worthy of special mention that the jury had very little difficulty in arriving at an agreement on the standards for all but a few problem sequences. Disagreement, when it did arise, usually was based on the fact that the experience of one member of the group was limited largely to the primary grades. When this individual "shifted" to the sixth-grade level, the disagreement usually was resolved.

The jury members commented afterwards that the experience of developing standards was extremely beneficial to them professionally. It tended to both sharpen and level their thinking in regard to technique. They came to know each other's professional views intimately and gained increased respect for one another.

It became evident to the jury as the standards were being developed that a number of general principles of teaching could be identified as being characteristic of the standards. Table II lists the principles which appear to be basic to the standards for one or more problem sequences.

Table II

General Principles of Student Teaching which Characterize the Rating Standards

General Principles	Representative Problem Sequences
1. Defer to the supervising teacher in problems involving rules of procedure; that is, do not attempt to establish your own rules if they are contrary to those of the supervisor.	I-1, 6
2. Be attentive to (responsible for) the entire class as well as the individual. The individual's needs do not necessarily have precedence over the class'. Avoid disturbing or neglecting a group just to interact with one individual.	I-2, 3, 12-15 (Exceptions: I-8, 9, 19, 20)
3. It is always better to anticipate classroom management problems before they happen. This means giving forethought to situations.	I-5, 12, 19
4. Avoid calling attention to individual's shortcomings or errors - do not place the learner in an embarrassing position.	I-9, 12-15, 16, 17, 20
5. When children are working on problems as a group (class or committee work) and one or more individuals do not appear to be contributing, first determine if the group is responsible or not. If so, direct group's attention to the situation (e.g., by self evaluation); if not, deal with the individual directly without disturbing the group.	I-9, 12-15, 16, 20
6. When direct action is required to control a disruptive group, act quickly and decisively. Move in on the situation and communicate at close range. Speak to individuals, if possible, not to groups.	I-7, 10, 11, 12-15, 19
7. When the students are disinterested or unmotivated, it is T's responsibility to stimulate a more active, interested response.	I-4, 14, 16, 18 (Exceptions: I-9, 20)
8. Be "non-directive" in instruction. Encourage students to express, explore, explain; offer them encouragement, "clues", etc.	I-8
9. Active participation by student is fundamental to learning. Students remember and use what they do, not what they are told.	I-17

Simulation facility. The research facility, called the "Classroom Simulator," was developed and installed in the Teaching Research Laboratory, on the OCE campus. A detailed functional description of the Classroom Simulator is included in the appendix. Briefly, T stands in a position relatively close to a large central projection screen and is observed by E through one-way glass or directly from the side. The large screen allows a life-size visual image to be projected. Appropriate stage props are used to further enhance the illusion of reality. E controls three motion picture projectors with the assistance of a projectionist who keeps the problem and feedback sequences in the proper arrangement. E starts and stops the projectors, and switches to one or the other as required.

IV Procedures for Using the Simulation Materials

The procedures for using the simulation materials were designed to meet the requirements of the experiment, outlined in the next section. However, there is no practical reason why the same procedures could not be used under ordinary circumstances. In fact, the experiment was conducted in the context of an ongoing course of instruction without interferring with the regular instructional program. However, the experimental procedure requires a special facility with expensive equipment and involves individualized instruction. Other procedures for using the same materials in more conventional ways have been reported elsewhere (Kersh, 1963) and are currently under development.

Orientation sequence. During the first week of the college term, E addressed all Ts as a group and briefly described the procedure and technique, without revealing the details of the experimental design. Subsequently, descriptive materials were distributed to individuals in the class, and they were instructed to study the cumulative records prior to their first experience in the Classroom Simulator. Ts were scheduled to spend one hour in the laboratory each week for as long as required.

During the first hour in the simulation facility, each T was oriented to the facility thoroughly. The equipment was described and the procedure outlined once again. Then T was asked to imagine that he had already met Mr. Land, his supervising teacher, and that Mr. Land had suggested that he drop in on the class to observe it prior to beginning his student teaching. He was to imagine then that this was his purpose at that time. Just prior to starting the orientation film sequence, T was instructed to imagine that he had just entered Mr. Land's classroom and was standing by the door. The simulation then continues as follows.

When the film is started, T observes Mr. Land passing out papers to his students. After a few seconds, Mr. Land appears to notice T for the first time, approaches T and asks him to be seated for a moment. Shortly thereafter, he calls the class' attention to T; then approaches and says softly that he would like T to introduce himself. He asks if T would like to have a few minutes to plan what he will say. This is the end of the first orientation scene. At this point E stops the film on a frame and, with Mr. Land's image still projected, assists T in planning his response to the screen, if required.

When T is ready to continue, the second orientation scene is started showing Mr. Land nod as if in response to T, then turn and indicate to the class that T is about to introduce himself. This is T's cue to begin.

During T's response, the children on film appear to be looking directly at him, and some appear to make whispered comments to each other. This scene lasts until T completes his introduction after which E shifts to Orientation Scene 3 which shows Mr. Land walk to the front and thank T and continue passing out papers to the children.

At this point, T is allowed to study the children on the film for as long as he wishes. E points out individuals by name, asks questions, and in general attempts to assist T become more familiar with the children. The cumulative records, descriptions of school and community, and seating chart are referred to freely, and all three orientation scenes are replayed over and over again. The entire laboratory experience with the orientation sequence takes approximately one-half hour.

Figure 3 diagrams the information for the entire orientation sequence. For convenience, information processing by E, T, and the simulation materials are grouped separately in three columns as indicated by the dotted lines.

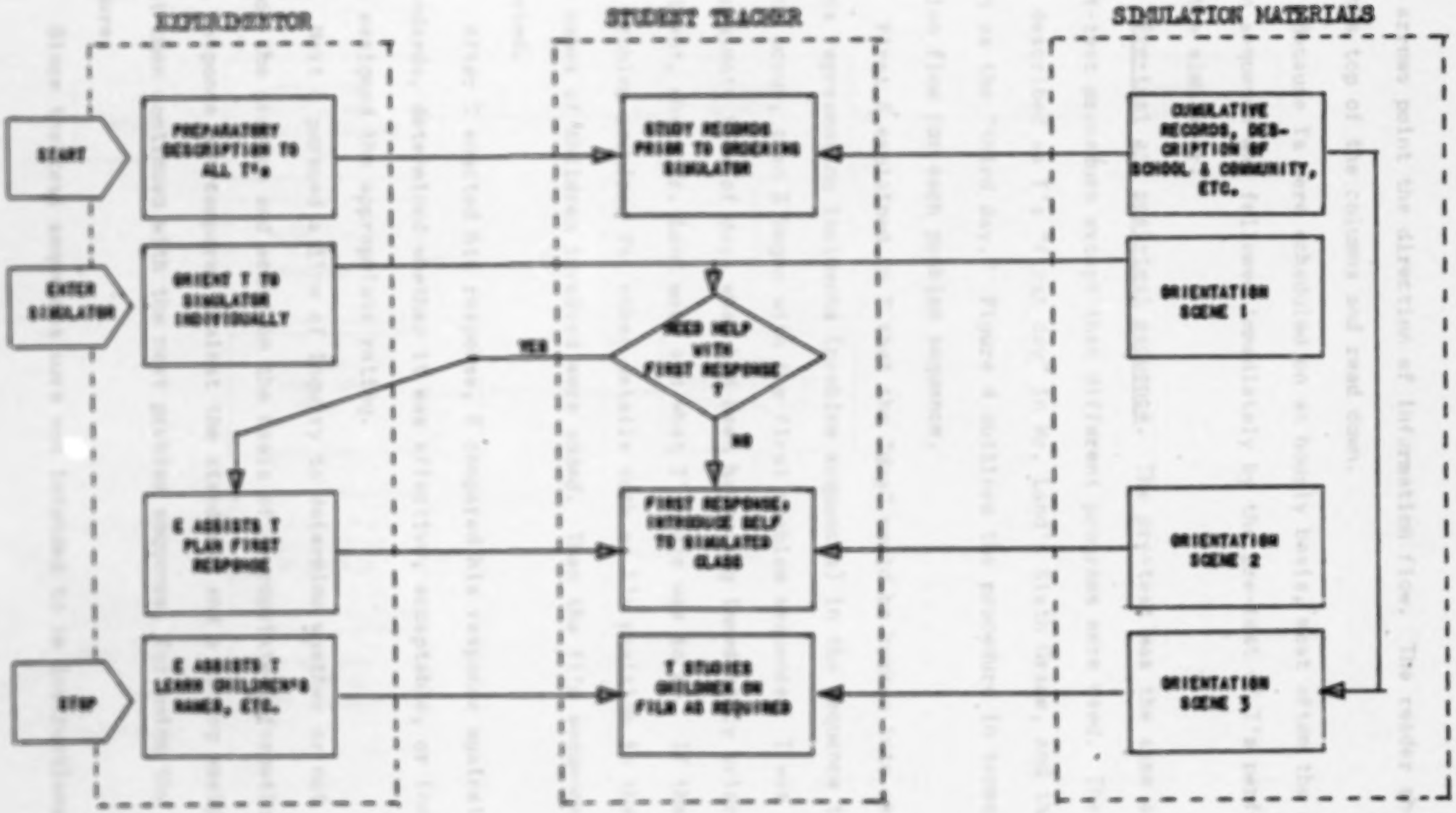

Figure 3. Orientation sequence: information flow during simulated observation of Mr. Land's Sixth Grade.

The arrows point the direction of information flow. The reader should start at the top of the columns and read down.

Because Ts were scheduled on an hourly basis, most often the orientation sequence was followed immediately by the pre-test of T's performance in the simulator.

Pre-test and post-test sequence. The pre-test was the same as the post-test procedure except that different programs were used. The pre-test was described as T's "first day" in Mr. Land's Sixth Grade, and the post-test as the "third day." Figure 4 outlines the procedure in terms of information flow for each problem sequence.

First E explained to T that the "day" would be broken into small segments representing incidents (problem sequences) in the sequence that they might occur, then E began with the first problem sequence. T was told the approximate time of day, what had been happening immediately prior to the incident, where Mr. Land was, and what T's role was to be. If the particular problem required it, other details such as T's position in the room and the names of children involved were added. Then the film sequence was started.

After T enacted his response, E compared his response against the jury's standards, determined whether it was effective, acceptable, or ineffective, and assigned the appropriate rating.

Next E pursued a line of inquiry to determine whether or not T understood the problem and acted on the basis of appropriate information. Again, T's response was compared against the standards and a rating assigned. The test then continued with the next problem sequence, following the same procedure.

Since the test sequences were not intended to be instructional, E re-

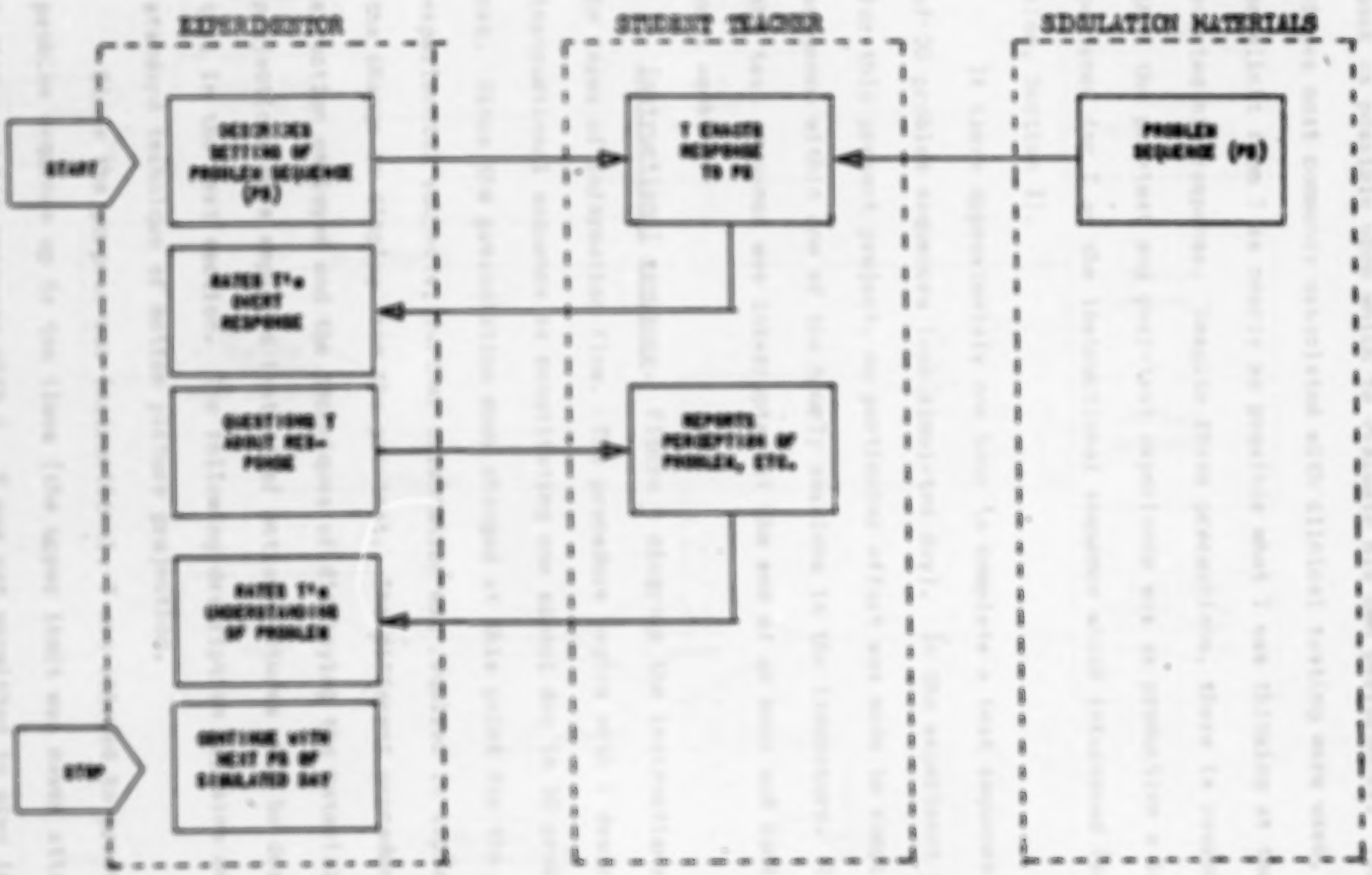

Figure 4. Pre-test and post-test sequence: information flow during simulation of first and last days (20 problem sequences each).

mained neutral in his reactions to T so that he would have as little feedback as possible upon which to evaluate his own performance. Inquiry techniques most commonly associated with clinical testing were used, designed to elicit from T as nearly as possible what T was thinking at the time he enacted his response. Despite these precautions, there is reason to believe that the pre-test and post-test experience was as productive a learning experience for T as the instructional sequence which intervened (see Discussion, Section I).

It takes approximately one hour to complete a test sequence consisting of 20 problem sequences (one simulated day). In the experiment conducted for this present project, no particular effort was made to complete a test sequence within one of the hourly sessions in the laboratory. If necessary, the test sequence was interrupted at the end of an hour and continued the next week.

Instructional sequence. Figure 5 diagrams the instructional sequence in terms of information flow. The procedure begins with E describing the instructional sequence as constituting one school day in 20 problem sequences. Since the presentation mode changed at this point for the most of the experimental subjects, further orientation was required in explanation of the change in display from the pre-test. The different procedures of instruction employed and the techniques of displaying the materials when still projections were employed instead of motion pictures will be described in detail in the next section. The following description pertains only to the standard technique of motion picture projection.

Since the purpose was instructional, T was allowed to practice each problem sequence up to ten times (the upper limit was never attained). Also, T discussed his response with E. E was not permitted to give information or

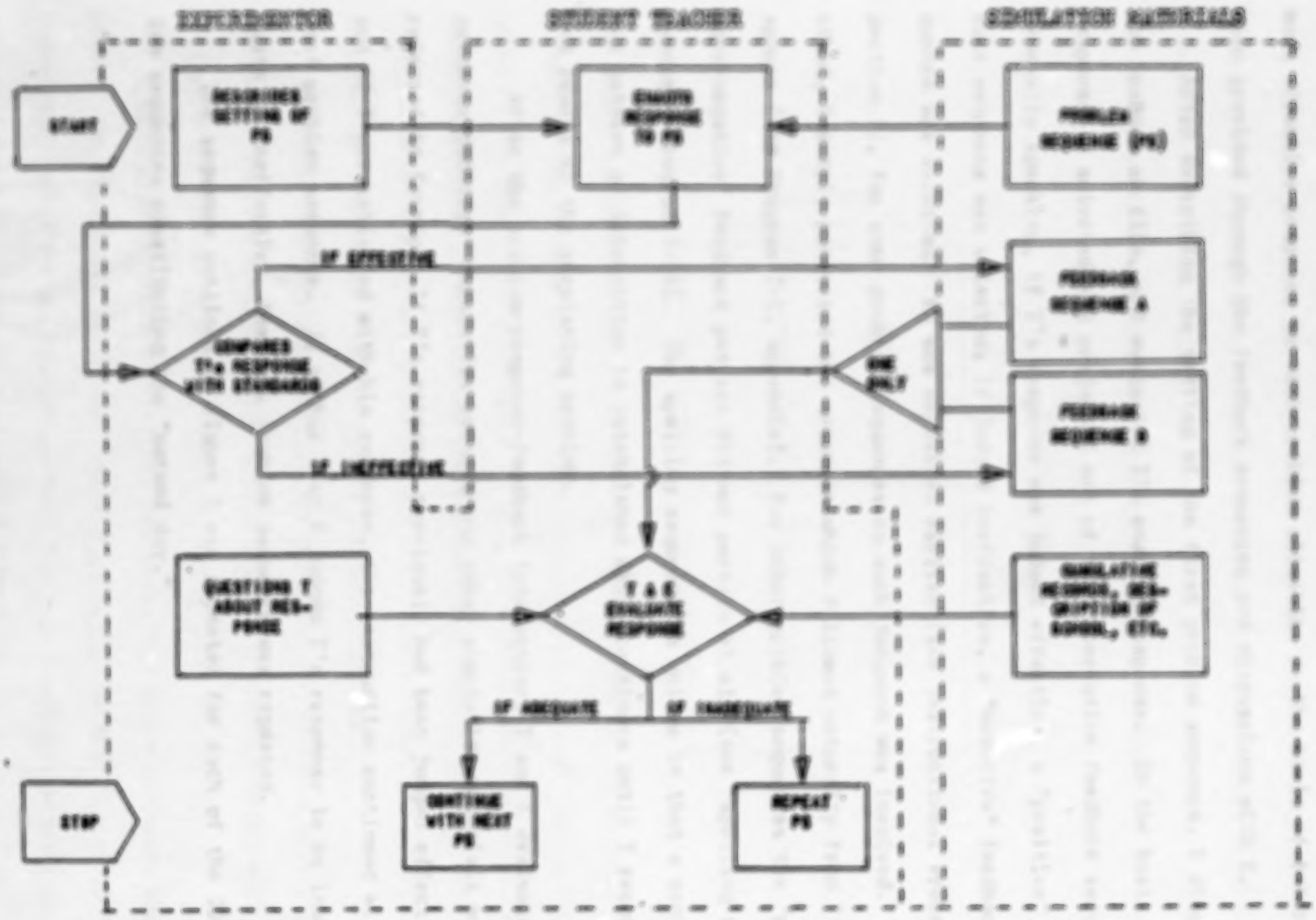

Figure 5. Instructional sequence: information flow during simulation of second day (20 problem sequences).

suggestions directly, however. Instead, T was instructed to "discover" the most effective response to each problem situation on the basis of information provided through the feedback sequences and discussions with E.

After describing the setting of the first problem sequence, E displayed the problem on film, and evaluated T's enacted response. On the basis of T's response, E selected and projected one of the alternative feedback sequences. Generally speaking, if T's response was judged effective, a "positive" feedback sequence was selected; if judged ineffective, a "negative" feedback sequence was selected. As was explained earlier (see Instructional Procedure, Section I), for some problem sequences no such judgment was involved. Instead, E simply projected the sequence which followed naturally from T's response (see Program I-1, appendix). For other problem sequences the "positive-negative" feedback pattern did not pertain at all (see "spelling sequence," Program I-16). The spelling sequence is unique in that a continuous pattern of interaction is established which continues until T recognizes and reacts to the persisting problem.

After the problem-response-feedback interaction, T and E evaluated T's response jointly. Cumulative records and other simulation materials were referred to freely. If T's response previously had been judged effective, and if T was satisfied with his response, the instruction continued with the next problem sequence. If either T or E judged T's response to be inadequate or ineffective, the same problem sequence was repeated.

The sequence outlined in Figure 5 was repeated for each of the 20 problem sequences constituting the "second day."

V The Experiment

The experiment was designed to determine the need for "realism" (fidelity) in simulation by comparing extremes in two different stimulus dimensions: (1) size, and (2) motion.

A two-factorial design was employed as diagramed below.

Size Cues	Motion Cues: Moving	Motion Cues: Still
Large	(Most realistic) n = 10	(Intermediate 1) n = 10
Small	(Intermediate 2) n = 10	(Least realistic) n - 10

N = 40

The design permits the comparison of four combinations of the main variables as well as the effects of the two main variables themselves. As is indicated in the chart, the variations in size involved large (life-size) and small projections of the problem and feedback sequences. The variations in motion were moving picture sequences and still projections. The still projections were selected from the motion picture sequences.

The four treatment combinations are presumed to represent different degrees of realism with the large motion picture projection being most realistic and the small still projection being least realistic.

Hypothesis. For the statistical analysis, the null-hypothesis was employed. As previously indicated (under Discussion, Section I), there is theoretical basis for an hypothesis that the most realistic display will enhance learning in terms of both rate and transfer.

Selection of subjects. Ts were selected from Junior level classes at Oregon College of Education (OCE). They were drawn from two classes, one per term (quarter) in two consecutive terms. Both classes were taught by the same instructor. Although the experience in the simulation facility was a requirement for completion of the course, the subjects did not know that they would be asked to participate until after they had enrolled with the instructor. No student was known to drop out because of the requirement.

Ts were screened initially on the basis of age and past experience. Students over the age of 25, and those who had prior teaching experience in a classroom were excluded. Eligible subjects were grouped by sex and experience with children. Two categories of experience with children were identified: (1) those whose experience was limited to observations in the classroom, and (2) those who had been employed or were being employed by the Campus Elementary School to work with children on the playground. Within these groups, Ts were ranked by scholastic aptitude scores (Minnesota Scholastic Aptitude Test), stratified in blocks of four each, and assigned to experimental groups by a table of random numbers. Analysis of variance in aptitude test scores supported an hypothesis of no difference among the four experimental groups ($p \leqq .05$).

After all Ts had taken the pre-test of performance in the Classroom Simulator, an analysis of variance of pre-test scores was performed. The null hypothesis was supported in this analysis, also ($p \leqq .05$).

Procedure. The procedures outlined in the previous section were used in the experiment. Ts were oriented, pre-tested, given instruction in the simulation facility, and post-tested in the manner indicated. Further explanation is needed only with regard to the instructional procedure for

those experimental groups which were not shown life-size motion pictures during the instructional period. The orientation and pre-testing procedure was the same for all groups. That is, large motion picture projections were employed.

Those in the still projection groups were oriented to the instructional phase with the further explanation that still projections (small or large, depending on T's assignment) instead of motion pictures would be employed. All Ts had been advised previously in class that they would be instructed in somewhat different ways but that there was no prior commitment by the experimental staff regarding the superiority of one technique over another. It had been explained that the equipment and space requirements for small, still projections were much less costly, but, at the same time, there were theoretical reasons for believing that life-sized projections might be advantageous. From the explanation of possible advantages and disadvantages for each presentation made, it was hoped that all Ts would enter the instructional phase with the same positive attitude and enthusiasm for the experience.

The procedure for instructing with still projections was identical to that employed with motion pictures with the exception that the problem sequence was described by E from the script. Whatever was on the sound track of the motion picture sequence was read by E directly. After describing a problem sequence E projected a single frame from the motion picture film, previously selected as being representative of the entire sequence.

T was instructed to enact his response to the still projection in the same way he had to the motion picture sequence during the pre-test. Most Ts resisted enacting their response, but still E encouraged them to "show" what they would do. After T had responded, E continued in the manner described earlier to display the feedback. Again, however, the projection

was still with E describing the action. The treatment provided the groups labeled Small-motion and Small-still were identical to their counter parts involving large projection except that the image on the large screen was reduced in size to 1' 3" x 1' 8". This was accomplished simply by changing the lens on the projectors to ones with 2.6" focal length.

The only other procedural restriction imposed by the experiment was that the post-test was given approximately one week after final instructional period.

Criterion measures. Obviously, the ultimate transfer criterion for evaluating the effectiveness of this simulation technique is the performance of student teachers in the classroom itself. However, for purposes of this limited experiment and to provide the necessary experimental control, performance ratings in the Classroom Simulator were employed. The test sequences were sufficiently different from those used during the learning period that a degree of transfer could be presumed. To eliminate bias resulting from differences among the three simulated days, the three programs were rotated systematically among the experimental subjects.

As was indicated in the previous section, Ts practiced each of the 20 problem sequences from one to ten times during instruction until they reached criterion. The total number of repetitions required was recorded for each T as an index of learning rate. The index of learning rate for each individual has a theoretical range of 20 to 200 repetitions.

Other data employed were verbal reports of Ts' reactions to (1) the change in projection mode, if any, following the pre-test, and (2) to the instructional procedure as a whole. The following specific questions were asked of many Ts at the end of the post-test sequence.

1. If you knew that this procedure was to be employed in a particular class next term, would you recommend to a roommate or to a friend that he

enroll in that class rather than in another class which did not require the experience?

2. If the same materials were presented in a regular classroom setting with each student writing responses instead of enacting them and then discussing their reactions afterwards in class, would the procedure be as effective as the individualized technique used in the experiment?

3. Do you have any specific suggestions for improving the instructional experience?

Results

A total of 40 student teachers participated in the experiment, 10 in each experimental group. Approximately one half of the total number participated during the winter term, 1963, and the remainder during the spring term. During the winter term the Principal Investigator and a research assistant alternately worked with the experimental subjects and observed while the other worked. After each session, the two Es compared their independent ratings and instructional technique. The research assistant was trained to employ the techniques of instruction used by the Principal Investigator and to interpret the jury's rating standards as he did.

During the first term's post-testing, both Es observed and rated independently 15 of the 20 Ts who participated. The product-moment coefficient of correlation was +.71 for the independent ratings recorded by the two Es.

The procedure was repeated during the second term with the exception that the Principal Investigator did not participate in the pre-testing or instructional phases. Independent observations for nine of the 20 subjects were obtained during post-testing. Because the Principal Investigator had not participated in the earlier phases of the instructional procedure, he did not know which experimental treatment each T had been given. The

corresponding coefficient of correlation for the nine Ts observed during the second term was +.54.

The inter-rater reliability for all 24 Ts was +.68.

Analysis of pre-test and post-test ratings. Table III presents the mean pre-test and post-test ratings for the entire group of 40 Ts. As is indicated, the pre-test ratings were nearly the same for each of the four groups. The post-test scores showed fairly consistent gains of 12 to nearly 14 points. The post-test ratings for the small-screen groups tend to be slightly higher than those for the large-screen groups.

The analysis of variance of the test ratings is summarized in Table IV. The table indicates that the variance which may be attributed to screen size is significant ($p \leq .05$). The only other source of variance which is significant is that attributed to differences between the two testings ($p \leq .01$). Interaction effects of motion and size are not significant nor are any of the other interactions listed.

Analysis of practice trials during instruction. The means for practice trials during instruction are listed in Table V. As is indicated, groups presented with still projections tended to require fewer practice trials to reach criterion than did groups who were presented motion pictures. The analysis of variance summary presented in Table VI indicates that the variance attributable to motion is significant ($p \leq .01$).

Student teachers' reactions. Ts' reactions to the new medium were almost unanimously favorable. Only two Ts from the entire group of 40 reported that they had gained little from it. Both Ts were consistently hesitant in reacting to the screen and failed to respond to the encouragement and support offered by E. Both were reported by their regular instructor to be very capable students academically but unlikely candidates for teaching. The remaining Ts reported independently that they would recommend the procedure

Table III

Mean Pre-test and Post-test Ratings

Motion	Large screen		Small screen	
	Pre	Post	Pre	Post
Moving	65.5	77.4	69.1	82.6
Still	66.4	78.3	66.1	79.9

Table IV

Analysis of Variance Summary: Test Ratings

Source	d.f.	s.s.	m.s.	F
Motion	1	19,013	19,013	- - -
Size	1	127.513	127.513	5.673 *
Testings	1	3264.013	3264.013	145.203 **
M x T	1	70.313	70.313	3.128
M x S	1	.113	.113	- - -
S x T	1	15.113	15.113	- - -
M x S x T	1	.113	.113	- - -
Within	72	1618.500	22.479	- - -
Total	79	5114.000		

* $p \leq .05$

** $p \leq .01$

Table V

Mean Practice Trials During Instruction

Motion	Screen Size	
	Large	Small
Moving	47.5	43.1
Still	41.3	40.8

Table VI

Analysis of Variance Summary: Practice Trials

Source	d.f.	s.s.	m.s.	F
Motion	1	173.23	173.23	8.52 **
Size	1	60.03	60.03	2.90
M x S	1	33.22	33.22	1.63
Within	36	731.50	20.32	- - -
Total	39	1,002.98		

** $p \leq .01$

enthusiastically. Several reported that it was perhaps the most valuable experience that they had yet encountered.

The primary difficulty encountered was the difficulty T had in "getting to know" the students in the simulated classroom. Reportedly the cumulative record folders were not entirely adequate because the Ts had difficulty remembering factual information from week to week. Even the snapshots in the folders were misleading because the students on film looked different. Specific suggestions for improving the simulation technique included providing more slides or pictures of the children in the classroom setting for T to study between sessions and scheduling the sessions closer together in time.

Reactions of Ts to projection mode are listed in Table VII. A systematic record of reactions was not maintained, so the frequency of responses does not indicate the proportion of the total group. Not all Ts were asked the same questions and some were asked for a general reaction only. However, all responses were recorded, whether supporting or not.

Evidently Ts were able to detach themselves from the situation more easily and to be more analytical in their reactions to the small and still projections. Also, a significant number indicated that they would prefer the individualized instruction over comparable instruction in a group setting because they felt it important to enact their responses rather than to simply talk about what they would do. Several indicated that they would enjoy the opportunity to discuss with their fellow students differing reactions to the same problem situation.

Table VII

Recorded Reactions of Student Teachers

Reactions	Experimental Groups			
	LM	LS	SM	SS
A. Motion pictures vs. Still projections				
1. Stills give time to think; are relaxing.	-	4	-	6
2. Motion is more realistic (stills lack feeling).	-	4	-	4
3. Explanation with stills gives cue as to what is going on.	-	-	-	1
4. Hard to adjust from slides to motion (post-test).	-	1	-	2
5. Motion will probably improve actual classroom performance.	-	-	-	4
6. Prefers motion (no explanation).	1	-	-	-
7. Overwhelmed by speed of action.	1	-	-	-
8. No difference.	-	1	-	1
B. Large vs. Small screen size				
1. Small image is clearer.	-	-	5	-
2. Not overwhelmed by size of students.	-	-	3	-
3. Large is more like classroom, "life-like."	-	-	4	3
4. Hard to get used to small screen.	-	-	1	-
5. No difference.	-	-	1	1
C. Other comments				
1. (a) Recommend less time between sessions.	3	3	3	1
(b) Keep weekly sessions.	1	1	-	-
2. (a) Would recommend simulation experience.	4	2	2	2
(b) Would not recommend.	-	-	-	1
(c) Neutral reaction.	-	-	-	1
3. (a) Keep individualized instruction.	6	3	4	4
(b) Recommend use with groups.	-	2	-	-
(c) Should have discussion groups.	-	1	1	-
4. Helps develop confidence; couldn't get this from a book; valuable experience.	4	5	6	5
5. "Acting out" makes feel "in" situation.	3	-	-	-
6. Likes discussion during training.	4	1	-	2
7. Recommend improving seating chart by adding pictures.	1	3	4	1
8. Miscellaneous comments.	7	5	1	5

VI Conclusions

A summary of the project and discussion of the results is included in Section I. Although the less realistic small projections were most effective in the present experiment, these data are not sufficient to say that the more economical small-still mode of presentation is as adequate as life-size motion pictures in instructional simulation. More specific conclusions are listed below.

1. The superiority of the small screen projection mode is interpreted to reflect the fact that the learner is more relaxed and can be more analytical in his thinking before the less realistic, small-sized screen. A question worth answering is whether or not it is a requirement that the learner experience both the life-size projection followed by the small projection, or just the small size by itself.

2. The statistically insignificant difference between moving and still projections is puzzling. Possibly the post-test of performance did not measure teaching behaviors which rely on motion cues. A performance test under actual teaching conditions might be more revealing. Timing, however, was a basis for rating 15 of the 60 sequences.

3. The fact that the still projections required fewer practice trials perhaps reflects the fact that in describing the problem sequences verbally, E revealed important aspects of each problem sequence directly. In the motion picture sequence, T was required to identify the same important aspects of each problem without help. In addition, the pace of the motion picture presentation is much more rapid and there are many more distracting cues.

4. The verbal reports of T's reaction to the differing projection modes lend added support to the conclusion that the effects of "realism" in

instructional simulation are confounded in the present experiment. The criterion measure did not tap the effect of changes in T's "affective sets" (see Figure 2) which were suggested by Ts' reports. It is entirely possible that the student teacher first should experience the emotional impact of a classroom of children in a variety of stressful situations and then practice effective ways of teaching under more relaxed (although not less specific or detailed) circumstances. Perhaps it makes little difference during actual instruction whether the stimulus materials are more or less "realistic" just so they provide T with the opportunity to analyze and to enact responses repeatedly under supervision.

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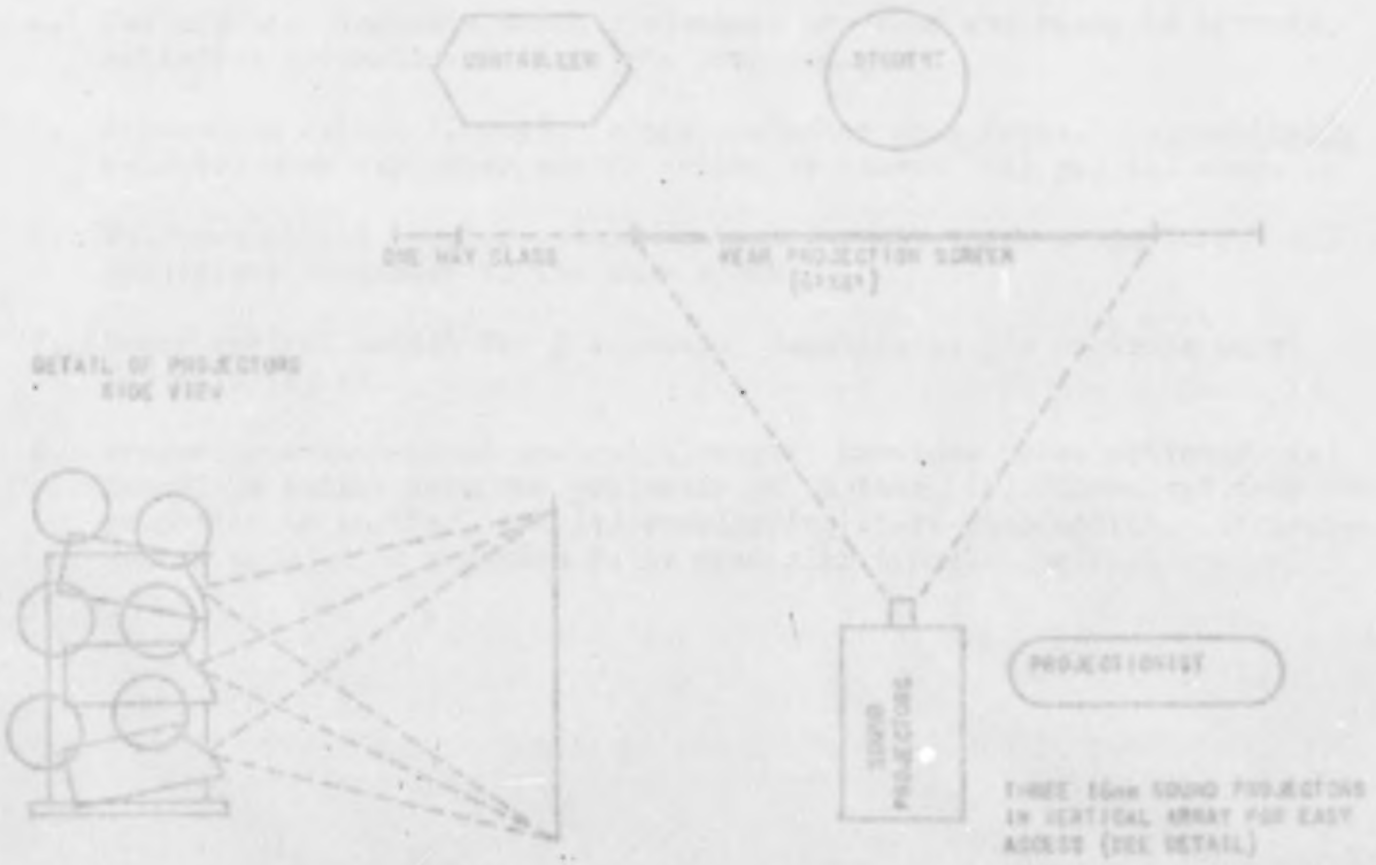
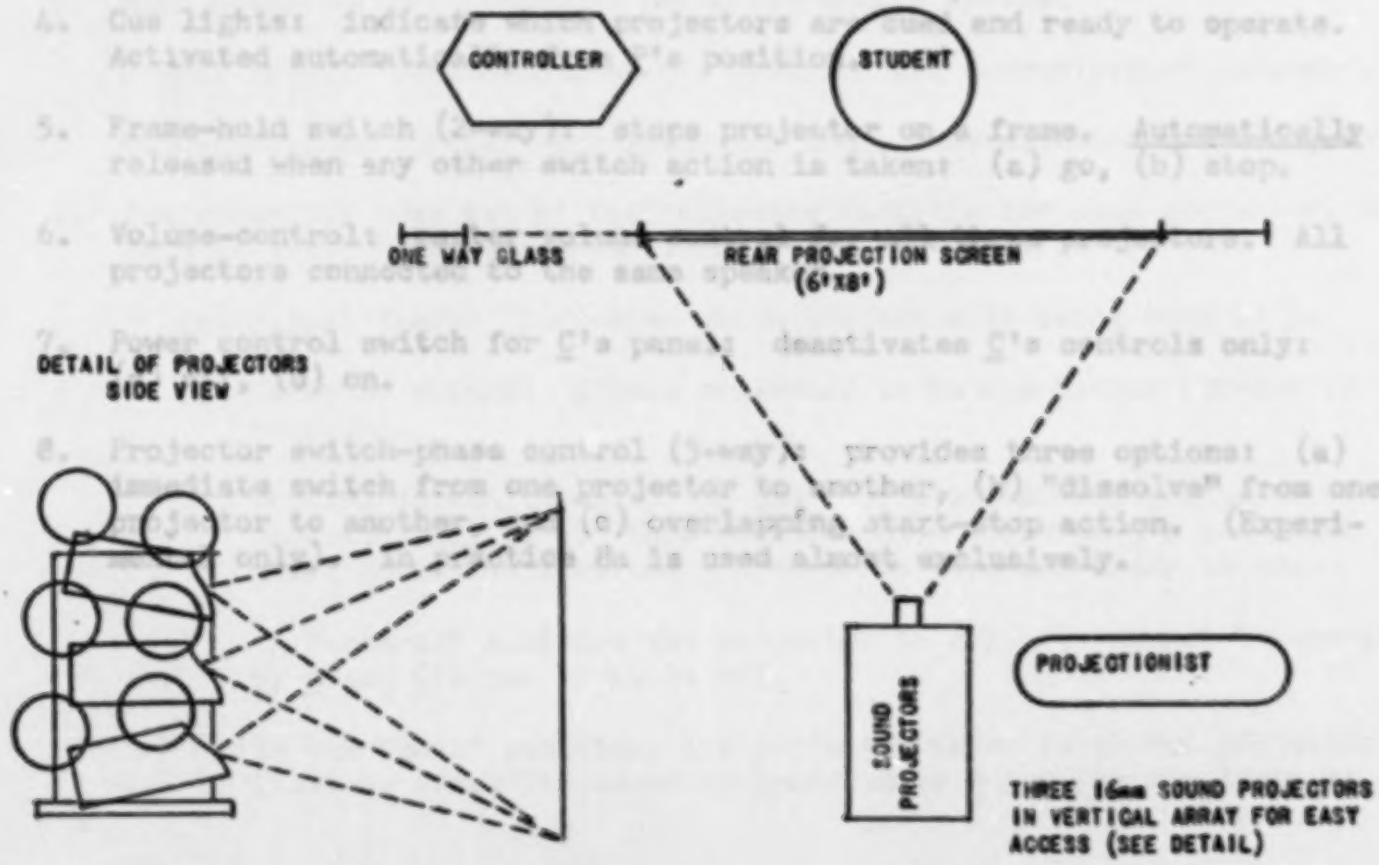


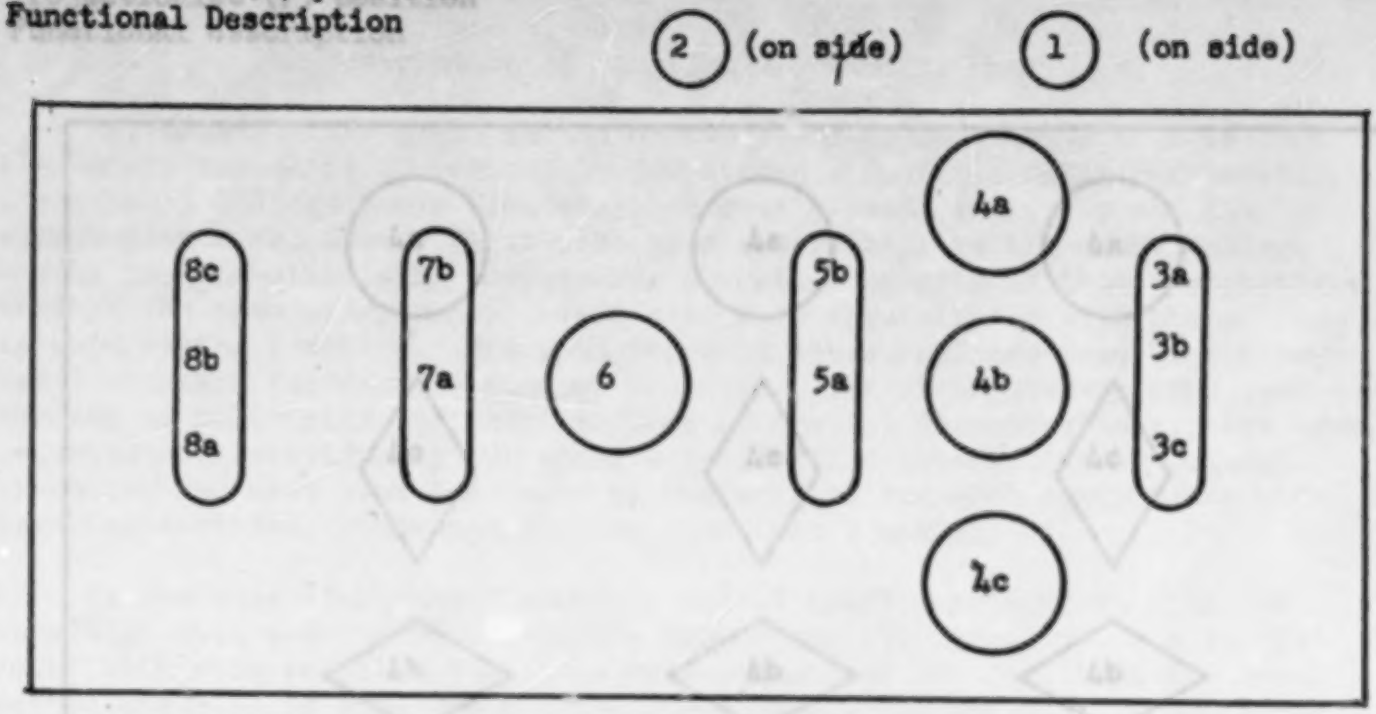
Simulation facility equipment
1962 Configuration

Units	Equipment
3	16 mm sound projectors (Bell & Howell #542, Filmsound Specialist, with 5/8" lens).
1	Rear projection screen, 6' x 8' (Commercial Picture Equipment, Inc., Model PV-60.)
1 (optional)	Suspended track drape for isolating stage area.
3	Plate glass mirrors, 16" x 22".
1	12" Speaker.
2 (optional)	One-way glass, 10" x 10", removable.
1 (optional)	Microphone-amplifier-speaker system (to amplify T's responses).
1 (optional)	Tape recorder (to record T's responses).
1 (optional)	Motion picture camera (to record T's responses).

The figure shows the plan view of the 1963 configuration of the simulation facility located in the laboratory school of Oregon College of Education.



Simulation Facility Controls
Controller's (C) position
Functional Description



1. Push button: controls the signal light on the P's panel.

2. Communication outlet: provision for audio communication with P.

3. Projector selection (3-way): (a) Starts projector 1.
(b) Starts projector 2.
(c) Starts projector 3.

4. Cue lights: indicate which projectors are cued and ready to operate. Activated automatically from P's position.

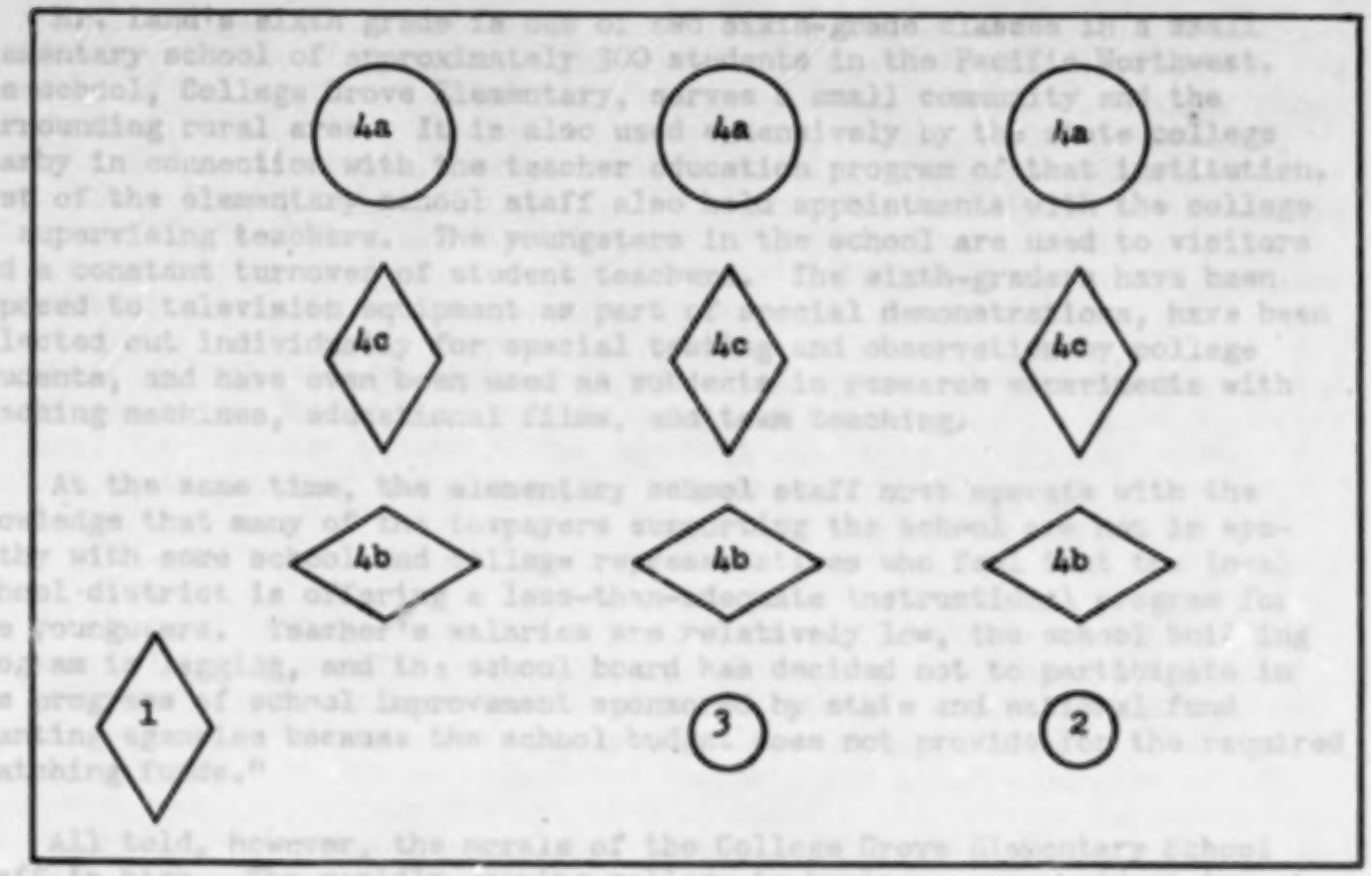
5. Frame-hold switch (2-way): stops projector on a frame. Automatically released when any other switch action is taken: (a) go, (b) stop.

6. Volume-control: master volume control for all three projectors. All projectors connected to the same speaker.

7. Power control switch for C's panel: deactivates C's controls only: (a) off, (b) on.

8. Projector switch-phase control (3-way): provides three options: (a) immediate switch from one projector to another, (b) "dissolve" from one projector to another, and (c) overlapping start-stop action. (Experimental only). In practice 8a is used almost exclusively.

Simulation Facility Controls
Projectionist (P) position
Functional description



1. Main power switch: controls power for entire system.

2. Signal light: activated from C's position for communication purposes.

3. Communications outlet: provision for audio communication between C and P.

4. Cue controls: One set of the following controls for each projector, three sets in all. These controls override C's controls.

   (a) Signal light: indicates which projector is being used by C.

   (b) Selector switch: allows projector to be run either forward or backward.

   (c) Control switch (3-way): In the "up" position the projector can be operated only be C. This position also turns on C's cue light which indicates that the projector is cued and ready to go.

   In "central" position the projector is off. It cannot be operated by C and C's cue light is off.

   In the "down" position, the projector motor is on but projector light is off. It cannot be operated by C and C's cue light is off.

Orientation Materials
Mr. Land's Sixth Grade

Description of School and Community

Mr. Land's sixth grade is one of two sixth-grade classes in a small elementary school of approximately 300 students in the Pacific Northwest. The school, College Grove Elementary, serves a small community and the surrounding rural area. It is also used extensively by the state college nearby in connection with the teacher education program of that institution. Most of the elementary school staff also hold appointments with the college as supervising teachers. The youngsters in the school are used to visitors and a constant turnover of student teachers. The sixth-graders have been exposed to television equipment as part of special demonstrations, have been selected out individually for special testing and observation by college students, and have even been used as subjects in research experiments with teaching machines, educational films, and team teaching.

At the same time, the elementary school staff must operate with the knowledge that many of the taxpayers supporting the school are not in sympathy with some school and college representatives who feel that the local school district is offering a less-than-adequate instructional program for the youngsters. Teacher's salaries are relatively low, the school building program is lagging, and the school board has decided not to participate in the programs of school improvement sponsored by state and national fund granting agencies because the school budget does not provide for the required "matching funds."

All told, however, the morale of the College Grove Elementary School staff is high. The rapidly growing college is having a very evident impact on the community. New houses are being built at an increasing rate. The city council has been awarded a planning grant for an urban renewal project and the homeowners in the blighted areas of the community have been cleaning up their own neighborhoods, painting and rebuilding rundown dwellings.

There are six grades in the College Grove Elementary School, plus a kindergarten which is supported, primarily, by the college. There are no state-supported kindergartens. The school population is relatively stable, so most of the youngsters in Mr. Land's sixth grade have been in residence since the first grade. In fact, Mr. Land has had this particular class for two successive years, so he knows the youngsters and their parents very well, by now. He is very warm and supporting teacher, so he has won the love and respect of his class. They confide in him and seek his counsel and advice on almost any matter of personal concern.

Mr. Land is not a strict disciplinarian. The class members are given a great deal of freedom and responsibility for their own behavior. However, there is one principle which is strictly enforced: any behavior which interferes with the efforts of others to learn is not tolerated. Mr. Land feels that learning can take place in any situation, and at any time. He encourages individuals and groups to engage in projects of self study and often will allow youngsters to pursue a line of personal interest, even when it interferes with the regular program of instruction. He does not advocate any

(Description of School and Community, cont'd. p.2)

particular learning theory or philosophy of education, but evidently feels strongly that his primary role as teacher is to remove all obstacles to learning and to foster a social environment in the classroom which will open lines of communication between student and teacher.

The Principal of College Grove Elementary School allows the instructional staff a great deal of freedom in the conduct of their respective classes. He is proud of his staff and lets them know frequently, in public, that he considers them to be master teachers capable of supervising student teachers, conducting demonstrations, and generally assisting him in the functions he is responsible for as Principal. At the same time, the Principal has the difficult task of attempting to offer the kind of program that the state college requires and at the same time to operate within the budgetary limits and somewhat restricting policies of the school board.

The school has a part-time nurse, a very adequate curriculum library, and has access to the Educational Media Center and library resources of the state college. It also has access to the physical education facilities of the college, making use of the pool, gym, and other facilities.

The Community

The town of College Grove has a population of approximately 2200 people and is the home of Pacific State College. No one is quite sure how many of the 1400 college students are included in the town's census. If it were not for the influence of the state college, College Grove would not be considered very prosperous. It has no industrial support, and a large portion of the population are people over the age of 50. Despite its obvious dependence on the college, the townspeople have not identified closely with the college until recently. Consequently, the merchants and city fathers are oriented primarily to the needs of the farmers and workers in the lumber industry in the surrounding area.

College Grove is not isolated, by any means. Just two miles away is the town of Milton which is just slightly smaller in population. Milton, however, is the center of business activity for the two communities. The city planners feel that the two communities are rapidly growing together. Already the two communities have integrated their schools and built the new high school exactly half way between the two city-centers. A new supermarket was built two years ago and is also located across the highway from the high school. People in the surrounding area are prone to speak of the two communities as the "College Grove-Milton" area.

Milton is built along the banks of a large river so the local lumber industry is concentrated in that community as well. In fact, Milton has a small operating lumber mill.

Generally speaking, the two communities of College Grove and Milton constitute a single, loosely knit community of approximately 4500 persons in the midst of several other larger communities. Ten miles to the north is another community of approximately 5000. To the south 20 miles is a community of 25,000 people and to the east 18 miles is the state capitol, population 50,000. Eventually College Grove and Milton may become the suburbs of the capital city.

Orientation Sequence
Mr. Land's Sixth Grade

PURPOSE

To provide T with an experience comparable to an observation prior to student teaching. Also to help T get used to speaking to the class and to learn to identify the pupils by name.

PROBLEM

Mr. Land asks T to introduce himself to the class.

SITUATION

It is about midmorning and Mr. Land is passing out papers to individuals in the class, calling them by name. T has just entered and is waiting to be noticed by Mr. Land. It should be understood that Mr. Land has interviewed T previously in private and is expecting T to visit the class at this time to be introduced. This takes place about one week prior to the time when T actually is to begin student teaching.

SCRIPT

1. OPEN ON MR. LAND PASSING OUT PAPERS TO CLASS.	MR. LAND: (says each pupils name as he passes out papers.)
LOOKS TO FRONT AS IF NOTICING OBSERVER FOR FIRST TIME.	"Oh, hello. Would you have a seat over there? I'll be right with you."
CONTINUES PASSING OUT PAPERS.	"Now class, if I may have your attention for a moment...this is our new student teacher for the quarter."
WALKS TO FRONT AND SPEAKS DIRECTLY TO T.	"Now, I think it would be better if you introduce yourself to the class. Would you like a couple minutes to think about a few things?"

Continue on next page

(Orientation Sequence, cont'd. p. 2)

2. OPEN ON MR. LAND SMILING AT T. TURNS TO ADDRESS CLASS, THEN BACK TO T.	"All right....now class I'd like you to meet our new student teacher and .....
POINTING TO T.	I think I'll let you do the introductions."
LONG SLOW PAN OF CLASS LISTENING TO T.	
3. OPEN ON CLASS LISTENING. MR. LAND STEPS IN VIEW AND SPEAKS TO T.	(Thanks T and continues passing out papers and commenting to class.)
THEN CONTINUES PASSING OUT PAPERS.	

Program I-1
Problem Sequence 14
Communication
Personal

PROBLEM

Eddie tells T that he has been sick and that his mother requests that he not be allowed to play at recess. Eddie does not offer a note from home.

SITUATION

At beginning of school day, just before first bell. T is monitoring the class.

SCRIPT

14.	AT BEGINNING OF SCHOOL DAY, JUST BEFORE FIRST BELL. EDDIE APPROACHES T.	EDDIE: "My mother told me to tell you that I have been sick this last week and I shouldn't be allowed to play today."
14.1	EDDIE FUMBLES IN POCKET AND DRAWS OUT FOLDED PIECE OF PAPER WHICH HE EXTENDS AS IF HANDING TO T.	EDDIE: "I have a note here somewhere. Here."
14.2	EDDIE NODS AND TURNS TO HIS SEAT.	

Rating Standards
I-1 (PS 14)

Response Method

Effective (3 rating)

What: Assure Eddie that his request will be considered.

The student teacher should know that verification is needed, but that it is not necessary to ask for a note immediately.

How: Be brief, but warm and supporting.

Acceptable (2 rating)

What (alternatives):

(1) Ask Eddie if he has a note or if he has given a note to Mr. Land.

(2) Ask Eddie to be seated without reference to note.

When: After first making a supportive comment.

How: Same

Ineffective (1 rating)

What (alternatives):

(1) Ask for a note immediately.

(2) Belabor "welcome back" response.

How: Questioning or rejecting response.

Problem Assessment

(Rate 2 for the following; rate 1 for other assessment. Use same rating procedure throughout)

Problem: See script

Special Considerations: none

Program I-2
Problem Sequence 9
Communication
Content

PROBLEM

While T is explaining something to the class, Terri asks for clarification.

SITUATION

Mr. Land has been called out of class for a few minutes and left T in charge.

T is talking to class, explaining something (e.g., how to become a teacher). Class is listening.

SCRIPT

9. CLASS APPEARS TO BE LISTENING ATTENTIVELY TO SOMETHING T IS SAYING OR DOING. AFTER SHORT WHILE TERRI APPEARS TO SQUIRM AND TO LOOK PUZZLED. FINALLY SHE RAISES HER HAND FOR ATTENTION AND THEN SPEAKS TO T.

TERRI: "But, I don't understand."

OTHER CHILDREN REACT TO PUZZLED TERRI, FROWNING, AND COMMENTING IN DISAGREEMENT

CLASS COMMENTS: "It's easy." Sure you do!", etc.

9.1 TERRI NODS IN SATISFACTION, CLASS REACTS WITH RELIEF.

9.2 TERRI RESPONDS AS IF TO CLARIFICATION BY T.

TERRI: "But, I still don't understand."

CHILDREN REACT AGAIN AS THOUGH THEY UNDERSTAND EVEN THOUGH PUZZLED TERRI DOES NOT.

Rating Standards
I-2 (PS 9)

Response Method

Effective

What (alternatives):

(1) Explain to Terri, using a different approach or simpler language.

(2) Give other students a chance to participate.

(3) Change topic.

How: Give a brief reply.

Acceptable

What (alternatives):

(1) Question Terri, "what don't you understand?"

(2) Explain it will become clear later on.

Ineffective

What (alternatives):

(1) Scold other pupils for their reaction.

(2) Make an elaborate explanation to Terri.

Problem Assessment

Problem: See script

Special Considerations:

A. Terri is probably assuming (incorrectly) that the class is also confused (see cumulative records).

B. Class reaction from the beginning indicates they do understand the teacher.

Program I-3
Problem Sequence 9A
Communication
Content

PROBLEM

During the same presentation as before, Phyllis asks for clarification. This time the entire class seems to be in agreement.

SITUATION

T is continuing the explanation started in the previous sequence. Class is again listening.

SCRIPT

9A	CLASS PAYING ATTENTION BUT THIS TIME THERE IS GENERALIZED PUZZLEMENT. PHYLLIS RAISES HER HAND FOR ATTENTION AND SPEAKS TO T.	PHYLLIS: "This time I don't understand!"
	THIS TIME THE REST OF THE CLASS NODS IN AGREEMENT.	CLASS: "Me either", etc.
9A.1	CLASS NODS, SMILES, AS IN UNDERSTANDING.	
9A.2	CLASS CONTINUES TO LOOK PUZZLED, FROWNING, COMMENTING TO NEIGHBORS.	

Rating Standards
I-3 (PS 9A)

Response Method

Effective

What (alternatives):

(1) Change topic, shifting until class appears interested.

(2) Shift to getting information about the class.

(3) Try using other mediums, e.g., blackboard.

Acceptable

What (alternatives):

(1) Acknowledge failure to interest group.

(2) Ask what is not understood.

Ineffective

What (alternatives):

(1) Failure to make any change in presentation.

(2) Show irritation or disgust.

How: Ineffective speech.

Problem Assessment

Problem: See script

Special Considerations: none

T's information is not particularly important, so the topic can be changed, or stopped entirely.

Program I-A.
Problem Sequence 9B
Communication
Inattention

PROBLEM

During the same presentation as before, the class becomes bored and loses interest.

SITUATION

Continuing the same description, T is talking to class.

SCRIPT

9B CLASS GRADUALLY BEGINS TO LOSE INTEREST. INDIVIDUALS BEGIN TO DOODLE, OR LOOK OUT WINDOW, REST THEIR HEADS ON THEIR HANDS, STARE, ETC.

9B.1 CLASS APPEARS TO BECOME MORE ATTENTIVE.

9B.2 CLASS APPEARS TO BECOME EVEN LESS ATTENTIVE.

Rating Standards
I-4 (PS 9B)

Response Method

Effective

What (alternatives):

(1) Change the topic.

(2) Shift to getting information from the class.

Acceptable

What (alternatives):

(1) Stop the presentation and have the class stand up and stretch, move around, etc.

(2) Try to make presentation more interesting by suggesting books to read, etc.

Ineffective

What (alternatives):

(1) Scold the class for being discourteous.

(2) Fail to notice the class is bored.

Problem Assessment

Problem: See script

Special Considerations: none

Program I-5
Problem Sequence 3
Baiting-Testing

PROBLEM

While the class is working at their seats, Carole notices that it is part recess time and calls this fact to the attention of T and the class.

SITUATION

Class is studying at their seats while T is monitoring. It is around 10 o'clock in the morning.

SCRIPT

3. OPEN ON CLASS IN TYPICAL SEAT WORK SETTING - WORK GROUPS, PERHAPS. CAROLE LOOKS AT CLOCK, THEN HURRIDLY WALKS TO FRONT AND SPEAKS.

CAROLE: "Five minutes past recess time!"

OTHERS HEAR AND REACT WITH EXCITEMENT.

3.1 GIRL NODS, RETURNS TO SEAT. CLASS CLOSES BOOKS, LEAVES IN ORDERLY FASHION.

3.2 CLASS REACTS WITH GREAT EXCITEMENT. BOLTS FOR DOOR.

CAROLE: "We can? Good!"

Rating Standards
I-5 (PS 3)

Response Method

Effective

What: Tell Carole to return to her seat. Do not dismiss class until Carole is seated.

How: Assertively--be blunt.

Acceptable

What (alternatives):

(1) Ask the class for verification.

(2) Thank Carole and tell her to return to her seat.

(3) Challenge Carole.

Ineffective

What: Apologize and dismiss class immediately.

Problem Assessment

Problem: See script

Special Considerations:

Remember Carole's personality. The class is primed to bolt.

Program 1-6
Problem Sequence 3B
Management
Baiting-Testing

PROBLEM

Just after announcing that it is five minutes past recess time, Carole says that Mr. Land usually lets them have five minutes extra when they are late for recess period.

SITUATION

Carole has just notified T that it is five minutes past recess time and now says something else.

SCRIPT

3B.	(SAME AS IN 3 WITH CLASSMATES IN BACKGROUND) CAROLE SPEAKS TO T.	CAROLE: "Mr. Land usually lets us have five minutes extra. Can we have five minutes extra?"
3B.1	(SAME AS 3.1)	(Normal exit for recess noise)
3B.2	(SAME AS 3.2)	

Rating Standards
I-6 (PS 38)

Response Method

Effective

What: Check the schedule or check with Mr. Land. Defer to authority.

Acceptable

What: Give a negative reply.

Ineffective

What: Give an affirmative reply

How: Apologetically

Problem Assessment

Problem: See script

Special Considerations:

The teacher should not let Carole "win out."

Program I-7
Problem Sequence 3A
Management
Disorderly Behavior

PROBLEM

Carole has just announced that the class is late for recess and T has made the mistake of saying the class can be dismissed immediately. The class bolts for the door.

SITUATION

Carole has just announced that the class is five minutes late for recess time and T has said that the class can go immediately.

SCRIPT

3A. (SAME AS 3.2) CAROLE SPEAKS TO T. CAROLE: "We can? Good!" THEN ENTIRE CLASS BOLTS FOR DOOR.

3A.1 OPEN ON CLASS STOPPED HALF WAY TO DOOR. THEY RESUME SEATS.

3A.2 (NO ALTERNATIVE. CONTINUE 3A.)

Rating Standards
I-7 (PS 3A)

Response Method

Effective

What: Stop them and stage an orderly exit.

When: Immediately - before the first ones get to the door.

How: Agressively.

Acceptable

What (alternatives):

(1) Let them go, purposefully.

(2) Stop them and then scold or make an elaborate explanation.

Ineffective

What: Wait beyond point where first ones exit and then try to stop them.

Problem Assessment

Problem: See script

Special Considerations: none

Program I-8
Problem Sequence 15
Communication
Content

PROBLEM

While the class is supposed to be studying, Doug asks T if he would like to learn a new way to add numbers that his dad had taught him the night before. Then Doug goes to the board and describes a rule which T may not know. (There are actually two parts to this problem, but it is to be treated as one.)

SITUATION

The class has been asked to study at their seats. Mr. Land is working with a youngster across the room and T is supposed to be helping others as required. This is a general study period.

SCRIPT

15.	OPEN ON CLASS WORKING AT SEATS. DOUG RAISES HAND FOR ATTENTION FROM T, THEN SPEAKS	DOUG: "Last night when I was doing that assignment you gave, Dad showed me a new way to add numbers. Want to see it?"
	(STOP ON FRAME AND WAIT FOR REACTION FROM T)	
	DOUG WALKS TO BOARD, WRITES NUMBERS AND EXPLAINS A RULE OF ARITHMETIC.	DOUG: (Explains rule for adding series of odd numbers beginning with one)
15.1	DOUG SMILES AND TRIES THE RULE ON SOME OTHER EXAMPLE OF THE PROBLEM, COMMENTING AS HE GOES.	DOUG: "I don't know why it works. I'll try it on some other problems."
15.2	DOUG ERASES AND RESUMES SEAT WORK.	

Rating Standard
I-8 (PS 15)

Response Method

Effective

What: Affirmative reply; encourage further exploration but avoid involving others or becoming overly involved as a teacher. Teacher should be the "audience."

Acceptable

What: Affirmative reply, but cut Doug off without showing much encouragement.

Ineffective

What (alternatives):

(1) Negative reply.

(2) Affirmative reply, followed by a directive explanation.

Problem Assessment

Problem: See script

Special Considerations: none

Program I-9
Problem Sequence 16
Management
Fatigue Reaction

PROBLEM

While working with a committee at the bulletin board, Eddie is observed to pull away and sit on the desk top as if very tired. It should be remembered that Eddie has been sick.

SITUATION

Class is engaged in seat work and a small group is working at the bulletin board, changing a display. T is looking at the group at the bulletin board.

SCRIPT

16. EDDIE, WORKING WITH SMALL GROUP OF BOYS AT BULLETIN BOARD, APPEARS DISTRACTED AND SLUGGISH. HE BACKS UP AGAINST EDGE OF TABLE AND SITS ON EDGE OF IT, WATCHING OTHERS. **EDDIE: "Gee, I'm tired."**

16.1 NEAR VIEW. EDDIE NODS AND WALKS TOWARD SEAT.

16.2 MEDIUM VIEW. EDDIE JUMPS TO FLOOR GRUMBLING AND CONTINUES WORK WITH GROUP.

Rating Standard
I-9 (PS 16)

Response Method

Effective

What: Support Eddie

How: "Sit down if you want," or just smile.

Acceptable

What (alternatives):

(1) Be supportive, but encourage Eddie to go back to work.

(2) No response, just let him sit there.

Ineffective

What (alternatives):

(1) Insist that he return to work

(2) Interrupt group, ask how they are getting along.

How: Disapprovingly

Problem Assessment

Problem: See script

Special Considerations:

Eddie has been sick for a week.

He might not have been in on the planning.

Program I-10
Problem Sequence 13
Management
Disorderly Behavior

PROBLEM

While shifting tables between activities, Tom and Chuck begin a game of shoving tables which spreads over entire class.

SITUATION

Class is changing from committee work to regular seating arrangement. T has just instructed the class to begin moving their tables into the regular position.

SCRIPT

13. CLASS IS CHANGING FROM COMMITTEE WORK TO REGULAR SEATING ARRANGEMENT. TOM AND CHUCK BEGIN GAME OF SHOVING TABLES WHICH SPREADS OVER ENTIRE CLASS.

13.1 CHILDREN QUICKLY PUT TABLES IN ORDER.

13.2 CLASS QUIETS DOWN BUT SOME ATTEMPT TO PLAY THE GAME PERSISTS. TOM AND CHUCK BECOME INVOLVED IN A TUSSLE OVER CHAIR (GOOD EXAMPLE OF SPONTANEOUS BEHAVIOR)

Rating Standard
I-10 (PS 13)

Response Method

Effective

What: Walk over to the group - call boys by name.

When: Early response important.

How: Assertively, concisely.

Acceptable

What: Stop the entire group.

When: After the disruption has spread.

How: Direct command.

Ineffective

What (alternatives):

(1) Call loudly over the noise, pointing out individuals after the noise has spread to the entire group.

(2) "Sermonizing".

Problem Assessment

Problem: See script

Special Considerations: none

Program I-11
Problem Sequence 4
Management
Disorderly Behavior

PROBLEM

Entering from recess, class begins a game of keep-away with Marie's comb.

SITUATION

The class is just returning from morning recess. T is in charge of the class.

SCRIPT

4. OPEN ON EMPTY CLASSROOM. CHILDREN ENTER AS IF FROM RECESS. THEY BEGIN TO TAKE SEATS JUST AS IF PREPARING FOR NEXT SCHOOL ACTIVITY. TOM GRABS MARIE'S COMB AND CHASE SPREADS OVER ENTIRE CLASSROOM.

4.1 CLASS LOOKS TO FRONT AS IF BEING SPOKEN TO, THEN VERY QUICKLY SETTLE DOWN.

4.2 CLASS LOOKS TO FRONT, GRUMBLES, THEN RESUMES PLAY.

Rating Standard
I-11 (PS 4)

Response Method

Effective

What: Call Tom and Marie by name.

When: At the beginning of chase.

How: Forcefully

Acceptable

What: Call Boys! Girls! Class! - intervene physically, have class take their seats.

When: After class enters chase.

How: Directly, forcefully

Ineffective

What: Appealing to class, begging, entering the chase.

Problem Assessment

Problem: See script

Special Considerations:

Tom started the chase.

Program I-12
Problem Sequence 8
Management
Distracting Behavior

PROBLEM

In a small reading group, Doug begins teasing his neighbor.

SITUATION

T is working with a small group of children near the blackboard while the rest of the class studies. Linda is reading while the others follow along in their textbooks.

SCRIPT

8. DOUG INITIATES DISTRACTING BEHAVIOR BY ELBOWING, STEPPING ON KAREN'S TOES, AS IF TEASING.

8.1 DOUG STOPS DISTRACTING NEIGHBOR AND LOOKS ATTENTIVE.

8.2 (USE 8B.2 OR CONTINUE DIRECTLY TO 8A)

Rating Standard
I-12 (PS 8)

Response Method

Effective

What (alternatives):

(1) Have Doug read — have him participate with a purpose.

(2) Ask Doug a question about what is being read.

When: After first occasion.

Acceptable

What: (1) Move Doug next to teacher.

(2) Speak to Doug.

When: By second occasion.

Ineffective

What: Focus attention on Doug by:

(1) Removing him.

(2) Scolding him.

When: After second occasion.

Problem Assessment

Problem: See script

Special Considerations:

Recognize that "round-robin" situation is likely to create problems and that divergent abilities and interests might create problems.

Program I-13
Problem Sequence 8A
Management
Distracting Behavior

PROBLEM

Doug continues to distract the group by teasing his other neighbor, Eddie.

SITUATION

Same situation as before. Linda is still reading to the group.

SCRIPT

8A. DOUG BEGINS PICKING ON OTHER NEIGHBOR, EDDIE, WHILE LINDA IS READING.

8A.1 DOUG AGAIN LOOKS ATTENTIVE AND RESUMES WORK.

8A.2 (USE 8B.2 OR CONTINUE TO 8B.)

Rating Standard
I-13 (PS 8A)

Response Method

Effective

What (alternatives):

(1) Have Doug read--have him participate with a purpose.

(2) Ask Doug a question about what is being read.

When: After first occasion.

Acceptable

What (alternatives):

(1) Change activity of the group.

(2) Refer Doug to Mr. Land.

When: After second incident.

Ineffective

What (alternatives):

(1) Focus class attention on Doug as being bad.

(2) Remove Doug from direct supervision.

When: At any time.

Problem Assessment

Problem: See script

Special Considerations:

Recognize that "round-robin" situation is likely to create problems and that divergent abilities and interests might create problems.

Program I-14
Problem Sequence 8B
Communication
Inattention

PROBLEM

During same situation as before, Doug becomes bored and inattentive.

SITUATION

Continued from previous sequence. Someone else is reading now.

SCRIPT

8B. DOUG BEGINS TO LOOK BORED, YAWNS, CLOSES BOOK, OBVIOUSLY NOT PAYING ATTENTION.

8B.1 DOUG AGAIN BEGINS TO PAY ATTENTION.

8B.2 DOUG LEAVES THE GROUP AND MOVES TO HIS SEAT.

Rating Standard
I-14 (PS 8B)

Response Method

Effective

What (alternatives):

(1) Have Doug read--have him participate with a purpose.

(2) Ask Doug a question about what is being read.

When: After first occasion.

Acceptable

What (alternatives):

(1) Change readers.

(2) Move Doug by teacher or send to Mr. Land.

Ineffective

What (alternatives):

(1) Remove Doug from direct supervision.

(2) Ignore him.

(3) Ask reader to slow down.

Problem Assessment

Problem: See script

Special Considerations:

Recognize that "round-robin" situation is likely to create problems and that divergent abilities and interests might create problems.

Program I-15
Problem Sequence 8C
Management
Distracting Behavior

PROBLEM

Doug has been asked to leave the reading group and study at his seat. After taking his seat, he begins to throw wads of paper at the wastebasket.

SITUATION

Continuing previous sequence. Doug has been asked to study at his seat. He is observed to be leaving the group while the others continue reading.

SCRIPT

8C. DOUG TAKES HIS SEAT TO WORK ALONE, CRUMPLES UP PIECE OF PAPER AND SHOOTS AT THE WASTEBASKET. OTHER BOYS NEARBY NOTICE AND RESPOND APPROPRIATELY. THIS CONTINUES FOR TWO OR THREE BASKETS.

LINDA: (Continues reading as if in reading group.)

8C.1 ALL BOYS LISTEN ATTENTIVELY TO T, THEN CONTINUE THEIR SEAT WORK.

8C.2 (NO ALTERNATIVE.)

Rating Standard
I-15

Response Method

Effective

What (alternatives):

(1) Acknowledge that Doug is needed back in group. Devise a means of bringing him back under direct supervision.

(2) Anticipate Doug's behavior early. If T acts quickly, it is permissable to leave group temporarily and ask him to settle down at his seat.

When: At the first toss of paper, or before.

Acceptable

What: Command Doug to put paper into basket in the proper manner.

When: At first toss of paper.

Ineffective

What (alternatives):

(1) Give additional work for Doug.

(2) Yelling at Doug and friends.

(3) Teacher leaves group to deal with Doug.

When: After friends enter game.

Problem Assessment

Problem: See script

Special Considerations:

Doug's ego is in jeopardy. He is probably resentful of T's action.

Program I-16
Problem Sequence 10
Communication
Inattention

PROBLEM

During a spelling exercise, Tom and Chuck .(seated), and Marie (at board) appear inattentive.

SITUATION

This is a spelling exercise for the entire class. Some are seated and some at the board. T reads a spelling word and uses it in a sentence while the class writes it down. Then T gives the correct spelling and the class is expected to check whether or not their spelling is correct. They have been asked to rewrite the word if they misspelled it.

SCRIPT

10. T HAS JUST GIVEN THE FIRST SPELLING WORD AND THE CLASS IS WRITING IT DOWN. TOM, CHUCK, AND MARIE APPEAR INATTENTIVE. MARIE IS DOODLING AT THE BOARD.

10.1 T HAS JUST READ THE CORRECT SPELLING, SO CLASS ACTS APPROPRIATELY BY CHECKING WITH THEIR SPELLING, ERASING, FROWNING, SMILING, ETC. SAME INDIVIDUALS APPEAR INATTENTIVE.

(CONTINUE SEQUENCE 10 & 10.1 FOR EACH WORD LISTED.)

Spelling Words:

1. bleeding

2. wound

3. knowledge

4. difference

Rating Standard
I-16

Response Method

Effective

What: Recognize that group is not ready--notice Tom at least, "Hurry, Tom" - otherwise repeat directions.

When: After first word.

How: Could scold a little.

Acceptable

What (alternatives):

(1) Same as above but after second word.

(2) Tell Marie to take her seat (quietly, without calling too much attention to her).

How: Repeat the word--focus on lesson rather than the children's inattention.

Ineffective

What (alternatives):

(1) Notice only Tom or Marie after first two words.

(2) Excessive scolding at any time.

(3) Fail to notice problem at all.

How: Scolding Marie and/or Tom.

Problem Assessment

Problem: See script.

Special Considerations:

Must notice one or more individuals of those mentioned.

Program I-17
Problem Sequence 11
Communication
Inattention

PROBLEM

During a spelling exercise, Kathy fails to correct her misspelled words at the board.

SITUATION

Continuing same spelling lesson. T has moved up closer to the board where Kathy and Marie are working.

SCRIPT

11. THE SAME SPELLING EXERCISE AS IN PS 10, FOCUSING ON KATHY AND MARIE AT BOARD. KATHY MISSPELLS WORDS OCCASIONALLY.

11.1 INSTEAD OF CHECKING HER WORK AS REQUIRED, KATHY LOOKS DOWN AT HER FEET, AND APPEARS INATTENTIVE.

(REPEAT SEQUENCE FOR SPELLING WORDS LISTED.)

Spelling Words:

1. require

2. apply

3. examination

Rating Standard
I-17

Response Method

Effective

What: (1) Remind Kathy to correct misspelled word.

When: At first occasion.

How: Without "scolding" (embarrassing). Talk quietly or walk to her.

Acceptable

What: Same--but by focusing on Kathy's behavior rather than procedure.

When: After first or second word.

Generalizing to group instead of Kathy.

Ineffective

What: "Didn't you study your words, Kathy?" (Send to seat)

Problem Assessment

Problem: See script

Special Considerations:

Knowledge of learning theory (call it "good pedagogy," if preferred)--that is, T should verbalize that it is important that Kathy correct misspelled words because she will remember the last way she spelled the word, most likely.

Program I-18
Problem Sequence 12
Communication
Fatigue Reaction

PROBLEM

During spelling lesson, class appears to be inattentive or tired.

SITUATION

Continuing previous spelling lesson. It is about 10 words later. T is in front of class again.

SCRIPT

12. SAME SETTING AS SCENE 10. THIS TIME KAY AND OTHERS REACT SOMEWHAT MORE SLOWLY AND WITH LESS ENTHUSIASM THAN USUAL.

12.1 CONTINUE AS IN PROBLEM SEQUENCE 10.1

REPEAT SEQUENCE FOR THREE WORDS LISTED.

Spelling Words:

1. service
2. illness
3. action

Rating Standard
1-16

Response Method

Effective

What (alternatives):

(1) Change method of spelling—"spell down") Strive for greater student involvement.

(2) Change activity entirely)

When: After first scene

Acceptable

What (alternatives):

(1) Rotating people at board.

(2) Change activity after second sequence.

Ineffective

What (alternatives):

(1) Ask for attention.

(2) Fail to notice group reaction.

(3) Call on specific individuals.

Problem Assessment

Problem: See script

Special Considerations:

Sensitivity to ineffectiveness of the method, itself.

Program I-19
Problem Sequence 7
Management
Fatigue Reaction

PROBLEM

While returning from recess, Brad jostles Eddie and the two boys begin a fight.

SITUATION

Class is entering from afternoon recess. T is in charge of the class.

SCRIPT

7. OPEN ON EMPTY ROOM. CLASS ENTERS FROM RECESS. EDDIE IS JOSTLED BY BRAD AND BOYS BEGIN TO FIGHT.

7.1 EDDIE AND BRAD LISTEN ATTENTIVELY, THEN NOD IN UNDERSTANDING. BOTH BOYS CONTINUE TOWARD SEATS IN MORE OR LESS FRIENDLY FASHION, REST OF CLASS PROCEEDS QUIETLY TO THEIR PLACES.

7.2 EDDIE AND BRAD LISTEN ATTENTIVELY, THEN EDDIE MOVES WITH SOME DISPLAY OF ANGER TO SEAT, FROWNING AND GRUMBLING AT BRAD.

Rating Standard
I-19

Response Method

Effective

What: Stop it immediately, get them to explain.

When: Immediately.

How: Call by name. Pull away from door.

Acceptable

What: (1) Calling them by name.

(2) Stop immediately—move in—but do not ask for explanation—send to seats.

When: Immediately.

Ineffective

What (alternatives):

(1) Punishment.

(2) Delay in response.

Problem Assessment

Problem: See script

Special Considerations:

Eddie's physical condition. He has been ill for a week. Anticipate such occasions by being near the door (traffic center).

Program I-20
Problem Sequence 7A
Management
Fatigue Reaction

PROBLEM

Eddie is observed to be lying his head on the table, instead of paying attention. Eddie has been sick previously and this is the last period of the day.

SITUATION

The class has just returned from recess and resumed their seats. They are expecting T to give instructions for the last hour.

SCRIPT

7A. DOLLY IN TO EDDIE WHO IS SEATED WITH HIS HEAD ON HIS DESK IN CONTRAST TO OTHERS WHO ARE LOOKING ATTENTIVELY AT T. DOUG NUDGES HIM TO PAY ATTENTION.

(STOP ON A FRAME AND WAIT FOR RE-ACTION FROM T.)

EDDIE LOOKS TO T AS IF IN ANSWER TO A QUESTION, THEN SPEAKS.

EDDIE: "No, I'm alright, just a little tired."

7A.1 EDDIE NODS IN UNDERSTANDING AND PUTS HIS HEAD BACK ON THE DESK.

7A.2 EDDIE FROWNS AT T, THEN BEGINS TO TAKE OUT MATERIALS FOR WORK WITH THE REST OF THE CLASS.

Rating Standard
I-20

Response Method

Effective

What (alternatives): Ask him how he feels, then:

(1) Allow him to rest.

(2) Notify some authority.

(3) Send to nurse.

How: Avoid calling attention to him (embarrassing)

Acceptable

What: Ask him how he feels. Give choice of resting or joining class.

How: By calling attention to him, intentionally or not.

Ineffective

What: Direct him to get back to work.

How: Without inquiry.

Problem Assessment

Problem: See script

Special Considerations:

Eddie's physical condition.